

DAN ROTH

Department of Computer and information Science
 University of Pennsylvania
 3330 Walnut St., Philadelphia, PA 19104-6309
 danroth@seas.upenn.edu;
<http://www.cis.upenn.edu/~danroth/>

CURRENT POSITION

VP/Distinguished Scientist, AWS AI & Eduardo D. Glandt Distinguished Professor,
 Department of Computer and Information Science, University of Pennsylvania

ACADEMIC POSITIONS

Eduardo D. Glandt Distinguished Professor, Department of Computer and Information Science, University of Pennsylvania, May 2017 – Present.

Adjunct Professor, University of Illinois at Urbana-Champaign, May 2017 – Present.

Founder Professor of Engineering, University of Illinois at Urbana-Champaign, January 2016 – May 2017.

Professor, University of Illinois at Urbana-Champaign, Department of Computer Science, July 2006 – May 2017.

Adjunct Professor, University of Illinois at Urbana-Champaign, Department of Linguistics (since 2005); Department of Statistics (since 2008), Graduate School of Library and Information Science (since 2009); Department of Electrical and Computer Engineering (since 2012).

Adjunct Professor, Toyota Technological Institute at Chicago, 2015–2019.

Associate Professor, University of Illinois at Urbana-Champaign, Department of Computer Science, July 2002 – July 2006.

Assistant Professor, University of Illinois at Urbana-Champaign, Department of Computer Science, July 1997 – July 2002.

Faculty Member, Beckman Institute of Advanced Science and Technology, UIUC, July 1998 – Present.

Faculty Member, Computational Science and Engineering Program, UIUC, March 1999 – Present.

Postdoctoral Researcher, Weizmann Institute, Israel, Department of Applied Mathematics and Computer Science, Sept. 1995 – Aug. 1997.

Research Scientist, Harvard University, Division of Applied Sciences, July 1996 – Oct. 1996.

Postdoctoral Fellow, Harvard University, Division of Applied Sciences, Jan. 1995 – Aug. 1995.

EDUCATION

HARVARD UNIVERSITY

S.M., Computer Science, 1992.

Ph.D., Computer Science, 1995.

Dissertation: *Learning in Order to Reason*; Advisor: Leslie G. Valiant

TECHNION, ISRAEL

B.A., *Summa cum laude* in Mathematics, 1981.

INDUSTRIAL POSITIONS

VP/Distinguished Scientist, AWS AI Labs, June 2022 – Present

NLP Science Lead, AWS AI Labs, July 2021 – May 2022

Amazon Scholar, February 2021 – May 2022

Google Affiliate Faculty, 2015–2020

Allen Institute of AI (AI2), Scientific Board Member, 2014 – Present.

NexLP, co-founder and Chief Scientist, 2012–2020 Acquired by Reveal, Inc. 2020.

Consultant, Machine Learning; Natural Language Processing; Information Extraction and Text Mining, 1994–Present.

Advisory Board, On the board of several start-up companies in the area of Machine Learning, Natural Language Processing, and Text Analytics. 2005–Present.

Officer, Israeli Defense Forces, R&D Unit, 1981–1990. Last rank: Major.

Senior Researcher and Project Manager, Israeli Defense Forces, R&D Unit, 1988–1990.
Managed a R&D project in intelligent real-time systems.

Software Manager and Lead Designer, Israeli Defense Forces, R&D Unit, 1985–1988.

Researcher and Software Engineer, Israeli Defense Forces, R&D Unit, 1982–1985.

SELECTED AWARDS AND HONORS

The 2020 Heilmeier Award for Excellence in Faculty Research, University of Pennsylvania, School of Engineering and Applied Science.

The International Joint Conference on AI (IJCAI) John McCarthy Award, 2017. Recognized for “major conceptual and theoretical advances in the modeling of natural language understanding, machine learning, and reasoning.”

Fellow, the American Association for the Advancement of Science (AAAS), 2014.

Fellow, the Association for Computational Linguistics,(ACL), 2012.

Fellow, the Association for Computing Machinery (ACM), 2011.

University Scholar, the University of Illinois, 2010.

Fellow, the Association for the Advancement of Artificial Intelligence (AAAI), 2009.

AWARDS AND HONORS (ALMOST COMPLETE LIST)

Best paper award runner up, CoNLL'21. Title: "BabyBERTa: Learning More Grammar With Small-Scale Child-Directed Language"

Best paper award, NAACL'21 workshop on Data Science with Human-in-the-loop. Title: "Building Low-Resource NER Models Using Non-Speaker Annotations".

The 2020 Heilmeier Award for Excellence in Faculty Research, University of Pennsylvania, School of Engineering and Applied Science.

Amazon Scholar, February 2021 –

Member of DARPA's Information Science and Technology (ISAT) study group (2018–2021)

The International Joint Conference on AI (IJCAI) John McCarthy Award, 2017.

Eduardo D. Glandt Distinguished Professor, University of Pennsylvania.

Founder Professor of Engineering, University of Illinois at Urbana-Champaign.

David F. Linowes Faculty Fellow, Cline center for Democracy, University of Illinois, 2015, 2016.

Fellow, the American Association for the Advancement of Science (AAAS), 2014.

College of Engineering Council Outstanding Advising Award, 2013.

Fellow, the Association for Computational Linguistics,(ACL), 2012.

Fellow, the Association for Computing Machinery (ACM), 2011.

University Scholar, the University of Illinois, 2010.

Fellow, the Association for the Advancement of Artificial Intelligence (AAAI), 2009.

Best student paper award, 11th Conference on Natural Language Learning (CoNLL), 2011. Title: "Adapting Text instead of the Model: An Open Domain Approach."

Best paper award, 27th Army Science Conference, 2010. Title: "Comprehensive Trust Metrics for Information Networks."

Lady Davis Visiting Professorship, Technion- Israel Institute of Technology, 2006-2007.

University of Illinois Award for Excellence in Guiding Undergraduate Research, Honorable Mention, 2006.

Software Awards: 1st place, software system competition for Semantic Role Labeling (Semantic Parsing). Run by the Conference on Natural Language Learning (CoNLL), June 2005 (out of 19 systems). 1st place, software system competition for Grammatical Text Correction. Run by the Conference on Natural Language Learning (CoNLL), June 2013 (out of 19 systems).

Xerox Award for Faculty Research (Senior Faculty), 2005.

Willett Faculty Scholar Award, University of Illinois, 2002.

University of Illinois Award for Excellence in Guiding Undergraduate Research, Honorable Mention, 2002.

Fellow at the Center of Advanced Studies, University of Illinois, 2001-2002.

Incomplete List of Teachers Ranked as Excellent by Their Students, UIUC, Spring 2001.

Xerox Award for Faculty Research (Junior Faculty), 2001.

American Association of Artificial Intelligence, Innovative Applications of AI Award, 2001 (with an IAAI paper award, “Scaling Up Context Sensitive Text Correction”).

C. W. Gear Outstanding Junior Faculty Award, Computer Science Dept., UIUC, 2000.

NSF Career Award, 2000.

Best paper award, IJCAI’99, the 16th International Joint Conference on Artificial Intelligence. Title: “Learning in Natural Language”.

IBM Faculty Equipment Award, 1999.

The Feldman Foundation Postdoctoral Fellowship, 1995–1996.

Nominee for ACM Best Dissertation Award, 1995

Harvard University, Derek Bok Excellence in Teaching Award, 1993.

Technion, Israel, Yuval Levi Award for Best Undergraduate Mathematics Student, 1980.

Technion President’s Fellowship 1979–1981.

ENTREPRENEURSHIP

NexLP, Inc. A startup that leverages the latest advances in Natural Language Processing (NLP), Cognitive Analytics, and Machine Learning in the legal and compliance domains. Co-Founder and Chief Scientist; Chicago, IL. 2012–2020. Acquired by Reveal, Inc., August, 2020.

AI21 Labs Advisor, 2017–2021

Haptik, Inc. Conversational Systems. 2015-2019. Acquired by Reliance Jio, 2019.

DRLT, Inc. Dan Roth Language Technologies. Consultancy. Philadelphia, 2019–Present.

Text-IE, Inc. Middleware for Text Analytics, Founder and President; Champaign, IL. 2011–Present.

Semantica, Inc. Co-Founder; Haifa, Israel. 2006–2020.

GRANTS

1. *Learning to Reason: Decomposition, Planning, and Quantitative Reasoning*, ONR. PI, 2023-2025. \$555,000.
2. *Neuro-Symbolic Compositional Generalization for Language and Vision Comprehension and Grounding*, ONR. Subcontract from MSU. PI, 2023-2025. \$450,000.
3. *RI: Medium: Learning to Map and Navigate with Vision and Language*, NSF Award, 2022-2026, co-PI. \$1,200,000.

4. *RI: Small: Robust Learning and Inference Protocols for Mitigating Information Pollution*, NSF Award, 2022-2026. \$250,000.
5. *HIATUS: Human Interpretable Attribution of Text using Underlying Structure Program*, IARPA. Subcontract from BBN. PI, 2023-2026. \$525,000.
6. *Understanding and Explaining Time*, 2022 Verisk AI Faculty Research Award \$80,000.
7. *MURI: Robust Concept Learning and Lifelong Adaptation Against Adversarial Attacks.*, Army Research Office. co-PI. 2020-2024. \$1,250,000.
8. *RESIN: Reasoning about Event Schemas for Induction of Knowledge*, DARPA. Subcontract from RPI. PI, 2019-2023. \$3,150,000.
9. *Learning to Reason with Learned Models and Domain Knowledge*, ONR. PI, 2019-2021. \$400,000.
10. *Learning with Less Labels (LwLL)*, DARPA. PI, 2019-2022. \$3,500,000.
11. *BETTER: Better Extraction from Text Towards Enhanced Retrieval*, IARPA. Subcontract from BBN. PI, 2019-2022. \$1,250,000.
12. *Weak Supervision for Information Extraction from Low Resource Languages*, DARPA. PI, 2018-2019. \$900,000.
13. *Incidental Supervision for Low Resource Languages*, DARPA. Subcontract from BBN, PI, 2018-2019. \$600,000.
14. *Learning and Inference Protocols for Recuperating from Information Pollution*, Google Focused Award. PI, 2017—2019, \$900,000.
15. *The Semantics of Information Pollution*, Tencent Award. PI, 2018, \$40,000.
16. *Natural language understanding, questions answering and reasoning from natural language text*, Allen Institute of AI Award. 2017-2018 \$80,000.
17. *IBM-Center of Cognitive Systems Research. IBM, Co-PI, 2016-2019.* \$1,000,000.
18. *Cognitively Coherent Human-Computer Communication: Communication with Computers (CwC)*, DARPA. PI, 2015-2019. \$3,000,000.
19. *Low Resource Languages for Emergent Incidents (LORELEI)*, DARPA. PI, 2015-2019. \$1,800,000.
20. *Profiler: A Paradigm for Global Knowledge Acquisition and Grounding*, Google Award. PI, 2015-2016, \$78,500.
21. *Verb Learning and the Early Development of Sentence Comprehension*, NIH Award. 2014-2019 (continuation of NIH Award no. 49), co-PI with Cynthia Fisher. \$1,861,557.
22. *Verb Learning and the Early Development of Sentence Comprehension: Experimental and Computational Studies*, NSF. 2014-2018 (complements the NIH Award no. 21), co-PI with Cynthia Fisher. \$426,012.
23. *Representation and Reasoning for Answering Quantitative Questions from Text*, Allen Institute of AI Award. 2014-2017 \$300,000.
24. *KnowEng, a Scalable Knowledge Engine for Large-Scale Genomic Data*, NIH BD2K Center for Excellence. 2014-2019. co-PI. \$15,000,000.

25. *Insight, A comprehensive, multidisciplinary brain training system*, IARPA SHARP program. 2014-2017. co-PI. \$12,500,000.
26. *Deep Exploration and Filtering of Text (DEFT)*, DARPA. PI, 2012-2016, \$2,500,000.
27. *Integrated Social History Environment for Research (ISHER) - Digging Into Social Unrest*, NSF (As part of an International NSF Challenge.) PI. 2012-2013, \$125,000.
28. *System for foresight and understanding from scientific exposition (FUSE)*, IARPA, through a subcontract from SRI. PI, 2011-2015, \$2,335,000.
29. *Information Network Academic Research Center (INARC): An Integrated Approach Towards Information Integration, Modeling, Retrieval, and Discovery*. Army Research Lab (ARL) through a subcontract from BBN. co-PI (Jiawei Han, PI). 2009-2017, \$8,152,000.
30. *SHARPS, Strategic Health IT Advanced Research Projects on Security*, HHS. co-PI (Carl Gunter, PI). 2010-2014, \$15,000,000.
31. *Cyber Analytics*. Boeing. PI, 2010-2013, \$400,000.
32. *MIAS, Multimodal Information Access and Synthesis*, a partner in CCICADA, a DHS Center of Excellence for Command, Control, & Interoperability. Illinois PI and Center Director. DHS, through Rutgers University. 2009-2014, \$2,000,000.
33. *Analytical Enhancements to a Unique UI Resource: The Cline Center's Digitized Global News Archive.*, UIUC Grant, Co-PI (Scott Althaus, PI) 2012. \$50,000.
34. *Knowing what to Believe: Trustworthiness of information*, Google Award. PI, 2010-2011, \$75,000.
35. *PASI: Methods in Computational Discovery for Multidimensional Problem Solving (Workshop)*, NSF. co-PI. 2013, \$100,000.
36. *MRI: Development of a Novel Computing Instrument for Big Data in Genomics*, NSF. Senior Personal. 2013-2017, \$1,800,000.
37. *Guiding Learning and Decision Making in the Presence of Multiple Forms of Information*, ONR Award. PI, with Gerald DeJong. 2009-2013. \$1,350,000.
38. *A Universal Machine Reading System*, DARPA, through a subcontract from SRI. PI, 2009-2014, \$2,400,000.
39. *The Assess-As-You-Go Writing Assistant*, Department of Education Award. co-PI, with William Cope, 2009-2012, \$1,500,000.
40. *A Writing Assistant*, An Award from the Grainger Program in Emerging Technologies. PI. 2009-2010. \$100,000.
41. *Microsoft Research Research Gift*, Microsoft Research. PI, 2008, \$10,000.
42. *The Universal Parallel Computing Research Center*, Microsoft & Intel. One of 18 co-PIs, 2008-2012, \$18,000,000.
43. *Meta-Data Annotation and Data Integration*, Library of Congress. PI of Subcontract from GSLIS. 2008-2009, \$143,000.
44. *NSF REU (research experience for undergraduates)*. 2008, \$12,000. Supports 2 undergraduate students as a supplement to NSF Science of Design Grant titled "Learning Based Programming."

45. *Free-speech command classification for Car Navigation Systems*, Honda Research Lab. PI. . 2007-2008, \$60,000.
46. *Populating Ontologies: Named Entities and Relations.*, Lawrence Livermore National Lab PI. 2007, \$100,000.
47. *MIAS, Multimodal Information Access and Synthesis*, A DHS Institute of Discrete Science. PI and Center Director. 2007-2009, \$2,400,000.
48. *PLATO: Phased Learning Using Active Thought & Observation: Bootstrap Learning*, DARPA. PI, with a subcontract from SRI. 2007-2010, \$1,431,000.
49. *Verb Learning and the Early Development of Sentence Comprehension*, NIH Award. 2007-2012, co-PI with Cynthia Fisher. \$1,331,821.
50. *Learning Based Programming*, NSF Science of Design Award, 2006-2009, \$471,000.
51. *Textual Entailment*, Google Award. PI, 2006-2007, \$50,000.
52. *Verb Learning and The Early Development of Sentence Comprehension: Experimental and Computational Studies*, NSF Award, 2007-2012, co-PI with Cynthia Fisher. \$391,000.
53. *NSF REU (research experience for undergraduates)*. 2006-2008, \$49,000. Supports 2 undergraduate students as a supplement to NSF Grant titled "Natural Language Technology for Guided Study of Bioinformatics."
54. *Focused Textual Entailment*. Boeing. PI, 2006-2009, \$200,000.
55. *Machine Learning for Security: Digital Guards for Insider Threat Detection*. Boeing. PI, 2005-2007, \$170,000.
56. *Learning by Reading*. Seedling funding from DARPA via a subcontract from SRI. PI. 2005-2006, \$105,000.
57. *Natural Language Technology for Guided Study of Bioinformatics*. NSF ITR. PI with S. Cooper, D. Litman, J. Pellegrino, S. Goldman, S. Rodriguez-Zas and C. Zhai as co-PIs. 2004-2007, \$1,025,000.
58. *Automated Methods for Second-Language Fluency Assessment*, A Critical Research Initiative (CRI) grant, UIUC Research Board. co-PI, with Richard Sproat, Chilin Shih, Mark Hasegawa-Johnson, Brian Ross, Kate Bock, 2005-2006, \$70,000.
59. *Reflex: Named Entity Recognition and Transliteration for 50 Languages*. Department of Interior, the REFLEX Program. co-PI with Richard Sproat, Abbas Benmamoun and Chengxiang Zhai (UIUC). 2004-2006, \$378,000.
60. *Kindle: Knowledge and Inference via Description Logics for Natural Language*. ARDA, the AQUAINT Program. PI with U. of Pennsylvania (Martha Palmer) as a subcontract. 2004-2006, \$700,000.
61. *Cross-Document Entity Identification & Tracing*. ONR, via the TRECC and the NCASSR Programs. PI, along with the ALG group at NCSA. 2004-2005, \$280,000.
62. *Business Intelligence Systems*. Motorola. PI, in a collaboration with NCSA. 2004-2006, \$200,000.

63. *NSF REU (research experience for undergraduates)*. 2003-2004, \$20,000. Supports 2 undergraduate students as a supplement to NSF Grant titled “Learning Coherent Concepts: Theory and Applications to Natural Language”.
64. *Programming Environments and Applications for Clusters and Grids*, National Science Foundation CISE Research Resources program. S. V. Adve (PI), W. W. Hwu, L. Kale, D. Padua, S. Patel, V. S. Adve, S. Lumetta, D. Roth, M. Snir, and J. Torrellas. 2002-2004, \$120,000 (additional \$60,000 matched by UIUC).
65. *Multimodal Human Computer Interaction: Toward a Proactive Computer*. NSF ITR. co-PI with T. Huang, D. Brown, D. Kriegman, S. Levinson, G. W. McConkie. 2000-2005, \$3,152,068.
66. *From Bits to Information: Statistical Learning Technologies for Digital Information Management and Search*. NSF ITR, co-PI with a MIT team, 2000-2003, \$2,039,989. PI of subcontract from MIT, \$321,000.
67. *Learning Coherent Concepts: Theory and Applications to Natural Language*, NSF Career Award, 2000-2003, \$300,000.
68. *Decision Making Under Uncertainty*, ONR, MURI Award. \$4,730,000. Co-PI with a UCLA-UCI team. PI of a subcontract from UCLA, 2000-2004, \$541,000.
69. *Context-Sensitive Natural Language Inferences*, IBM Equipment Award, 2000, \$100,000.
70. *The Role of Experience in Natural Language*, NSF (KDI/LIS), co-PI with G. Dell, K. Bock, J. Cole, C. Fisher, S. Garnsey, A. Goldberg, and S. Levinson. 1999-2001, \$600,000.
71. *NSF REU (research experience for undergraduates)* grant. 1999-2000, \$12,000. Supports 2 undergraduate students as a supplement to NSF Grant titled “Learning to Perform Knowledge Intensive Inferences”.
72. *Learning to Perform Knowledge Intensive Inferences*, NSF, 1998-2000, \$255,000.
73. *Learning and Inference in Natural Language*, UIUC Research Board, May 1998, \$25,000.
74. *Learning Common Sense Knowledge Base to Support Information Extraction and Retrieval*, Israeli Ministry of Science and the Arts, PI, with S. Edelman, 1996, \$32,000.

PATENTS

US Patent 5,907,839, “*An algorithm for learning to correct context-sensitive spelling errors.*” Granted, May 1999.

US Patent 5,956,739, “*System for text correction adaptive to the text being corrected.*” Granted, Sept. 1999.

SOFTWARE

(See <http://cogcomp.org/page/software/> and <https://github.com/CogComp> for a complete list of publicly available software, and <http://cogcomp.org/page/demos/> for on-line demonstrations). See also: “CogCompNLP: Your Swiss Army Knife for NLP”.

Saul, A a next generation Declarative Learning Based Programming Language.

Learning Based Java (LBJava): A modeling language that expedites the development of systems with one or more learning components, along with Constrained Optimization inference.

Structured Learning (SL): A Java based Structured Learning Library.

Joint Learning with Indirect Supervision (JLIS): A software package for structured prediction and structured prediction with latent variables.

SNoW: A Learning Architecture tailored for learning in the presence of a very large number of features.

FEX: A relational feature extractor for the generation of intermediate knowledge representations for large scale learning.

NLP Pipeline: Learning based natural language processing tools. Software includes the basic tools for an NLP pipeline, from Tokenizer, Sentence Segmentation, Lemmatizer, Part of Speech tagger, to Shallow Parsing and Dependency Parser. Includes an interactive Web demonstration.

Information Extraction Tools: Basic Machine Learning Tools for Information Extraction. Includes: Named Entity Recognition Package, Event Extractor, Temporal Reasoning, and Quantitative Reasoning. Integrated with the aforementioned pipeline and includes an interactive Web demonstration.

Textual Entailment: A Machine Learning based tool and components for supporting open domain textual entailment. Includes an interactive Web demonstration.

Co-Reference Resolution: A Machine Learning based tool for co-reference resolution and for resolving hard pronoun resolution problems. Includes an interactive Web demonstration.

Entity Resolution and Wikification: A Machine Learning based tool for “wikification” – disambiguating entities and concepts and mapping them to an encyclopedic resource. Includes an interactive Web demonstration.

Semantic Role Labeling (Semantic Parsing): A Machine Learning based package that provides a shallow semantic analysis of sentences (E.g., Who did What to Whom, When, When, How). The system includes extensions over the standard verb-based SRL, and includes noun predicates, prepositional predicates, and others. The verb-SRL system was the top system at the Shared Task competition (out of 19 systems) run by the Conference of Natural Language Learning (CoNLL), June 2005. Includes an interactive Web demonstration.

Grammar Checker for (ESL) English As a Second Language: A Machine Learning based package for context sensitive grammar correction, focusing on adapting to errors made by non-native English writers. The system was the top system at the Shared Task competition (out of 19 systems) run by the Conference of Natural Language Learning (CoNLL), June 2013. Earlier versions won two other software competitions – HOO (Helping Our Own) Text Correction Challenges, 2012, 2011.

PROFESSIONAL ACTIVITIES

CONFERENCE CHAIR:

Annual Conference of the North American Chapter of the Association for Computational Linguistics (NAACL 2022), August 2022, Seattle, USA.

The Annual International Conference on Artificial Intelligence and Machine Learning Systems (AIMLSystems), October 2022, Bangalore, India.

The Seventh Conference on Natural Language Processing and Chinese Computing (NLPPCC 2018), August 26-30 2018, Hothot, China.

PROGRAM CHAIR:

The Conference of the Association of Artificial Intelligence 2011 (AAAI 2011), San Francisco, CA., August 2011.

41st Annual Meeting of the Association for Computational Linguistics (ACL 2003), Sapporo, Japan, July 2003.

Sixth conference on Natural Language Learning (CoNLL'02), Taipei, Taiwan, Aug. 2002.

EDITOR

Journal of Artificial Intelligence Research (JAIR): Editor-in-Chief January 2015 – February 2017.

Journal of Artificial Intelligence Research (JAIR): Associate Editor-in-Chief January 2013 – January 2015.

Special Issue of the Italian Journal of Computational Linguistics (IJCoL) on “Language and Learning Machines” 2017, Editor.

Special Issue of the Machine Learning Journal on “Learning Semantics” 2012, Editor.

Special Issue of the Natural Language Engineering Journal on “Textual Entailment”, Summer 2009, Editor.

Special Issue of the Machine Learning Journal on “Machine Learning in Speech and Natural Language”, Winter 2005, Editor.

Special Issue of the Computational Linguistics Journal on “Semantic Role Labeling”, Winter 2006, Program Committee.

Special Issue of the *Linguisticae Investigationes* Journal on “Named Entities”, Fall 2007, Program Committee.

EDITORIAL BOARDS:

Editorial Board of *Frontiers in Big Data* <https://www.frontiersin.org/>

Journal of Artificial Intelligence Research (JAIR): Associate Editor, 2006–2010. (Editorial Board 2004-2005.)

AI Access, a not-for-profit book publisher for free access books, Advisory Board, 2013–2017

International Journal Machine Learning and Cybernetics (IJMLC), Advisory Board, 2010–.

Machine Learning Journal: Associate (Action) Editor, 2004–2011. (Editorial Board: 2001-2004; 2012-2014)

ECML/PKDD, The Journal of the European Conference on Machine Learning, Editorial Board, 2013.

Computational Intelligence, 2003-2010.

Computational Linguistics, 2000-2003.

TALIP, ACM Transactions on Asian Language Information Processing, 2003-2005.

STEERING/ADVISORY COMMITTEES:

IJCAI Awards Committee 2020-2022

AAAI/SIGAI PhD Dissertation Award Committee 2020-2024

NIST TAC-KBP Scientific Advisory Board 2020 –

Science advisor to the U.S.-Israel Bi-national Science Foundation (BSF), 2016 – 2019.

Allen AI Institute, Scientific Advisory Board; 2014–.

AI Summit, a joint AAAI/IJCAI committee of AI leaders; 2014.

AI Access Books, An Open Access Publisher, 2014–.

Cline Center for Democracy, University of Illinois, Advisory Committee, 2014–2017.

IJCAI, the International Joint Conference on AI, Advisory Board (2011, 2016).

Excitement, a European Union project on Recognizing Textual Enticement, Advisory Board, 2011–.

Association of Computational Linguistics, Special Interest Group on Natural Language Learning, 2007–.

IEEE SMC Technical Committee on Cognitive Computing 2007–.

NIST Advisory Committee on Recognizing Textual Entailment 2008–.

PRESIDENT (ELECTED):

Association of Computational Linguistics, Special Interest Group on Natural Language Learning, 2003–2005.

SECRETARY:

Association of Computational Linguistics, Special Interest Group on Natural Language Learning, 2002-2003.

PROGRAM COMMITTEES:

ACL The International Conference of the Association on Computational Linguistics 2000, 2001, 2002, 2003 (Program Chair), 2004, 2005, 2007 (Senior Program Committee Member), 2010, 2012, 2013 (Area Chair), 2021 (Senior Area Chair), 2024 (Senior Area Chair).

AI&Stat The International Conference on Artificial Intelligence and Statistics, 2023 (Senior Area Chair).

ALT The International Conference on Algorithmic Learning Theory (ALT) 2001.

AAAI, The Conference of the American Association for Artificial Intelligence, 1996, 1998, 1999, 2000, 2002 (Senior Program Committee Member), 2006 (Senior Program Committee Member), 2008 (Senior Program Committee Member), 2011 (Program Chair), 2012 (Senior Program Committee Member), 2013 (Senior Program Committee Member), 2015 (Senior Program Committee Member), 2016 (Senior Program Committee Member), 2017 (Senior Program Committee Member), 2018 (Senior Program Committee Member), 2020 (Area Chair).

SBIA The Brazilian International Symposium on Artificial Intelligence 2008.

BISFAI The Biennial Bar-Ilan International Symposium on the Foundations of Artificial Intelligence 2001, 2005.

COLT The Annual Conference on Learning Theory (COLT), 1998, 2005, 2006.

CoNLL The ACL conference on Natural Language Learning 2001, 2002 (Program Chair), 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2017.

COLING The International Conference on Computational Linguistics, 2008 (Area Chair), 2012.

EMNLP The ACL Conference on Empirical Methods in Natural Language, 2005 (Area Chair), 2007, 2009, 2010, 2012, 2019 (Area Chair), 2020 (Reviewer Award), 2023 (Senior Area Chair).

EACL The European Conference on Computational Linguistics, 2009, 2012.

ICALP The International Colloquium on Automata, Languages and Programming, 1999.

ICML, The International Conference on Machine Learning, 2000, 2001, 2002, 2003 (Area Chair), 2005, 2006 (Area Chair), 2008, 2009 (Area Chair), 2010 (Area Chair), 2012, 2013 (Area Chair), 2015 (Area Chair), 2016 (Area Chair)

IJCAI The International Joint Conference on Artificial Intelligence, 2003 (Poster Committee), 2009 (Senior Program Committee; IJCAI advisory board), 2016 (IJCAI advisory board), 2018 (Area Chair), 2019 (Track Chair), 2021 (Senior Area Chair)

ILP The International Conference on Inductive Logic Programming, 2002, 2003, 2004.

KR The International Conference on Principles of Knowledge Representation and Reasoning (2000).

NAACL, The North American Conference on Computational Linguistics 2000, 2001, 2004, 2009, 2010 (Area Chair), 2012, 2016 (Area Chair), 2018 (Area Chair), 2019 (Demo track), 2022 (Senior Area Chair).

NIPS, The Neural Information Processing Systems Conference (reviewer) 2002, 2003, 2004, 2005, 2006, 2011.

Workshops: Served on committees of numerous ICML, AAAI, NIPS, ACL and EACL collocated workshops, as well as committees of AAAI and IJCAI Symposia on various topics.

TUTORIALS & COURSES:

Director of the Data Science Summer Institute (DSSI) 2007, 2008, 2010, 2011, 2012. A six weeks long summer school on the foundations and practice of Data Science, UIUC.

ACL'23, The Conference of the Association on Computational Linguistics. June, 2023. A tutorial on *Indirectly Supervised Natural Language Processing*.

NAACL'22, The Conference of the Association on Computational Linguistics. July, 2022. A tutorial on *New Frontiers of Information Extraction*.

COLING'22, The Conference of the Association on Computational Linguistics. October, 2022. A tutorial on *Neuro-Symbolic Methods for Natural Language Processing*.

ACL'21, The Conference of the Association on Computational Linguistics. July, 2021. A tutorial on *Event centered Natural Language Understanding*.

AAAI'21, The Conference of the Association for the Advancement of Artificial Intelligence; February, 2021. A tutorial on *Event centered Natural Language Understanding*.

ACL'20, The Conference of the Association on Computational Linguistics. July, 2020. A tutorial on *Commonsense Reasoning in Natural Language Processing*.

AAAI'20, The Conference of the Association for the Advancement of Artificial Intelligence; February, 2020. A tutorial on *Recent Advances in Transferable Representation Learning*.

ACL'18, The Conference of the Association on Computational Linguistics. June, 2018. A tutorial on *Multi-lingual Entity Discovery and Linking*.

EACL'17, The European Conference of the Association of Computational Linguistics; A tutorial on *Integer Linear Programming Formulations in Natural Language Processing*.

AAAI'16, The Conference of the Association for the Advancement of Artificial Intelligence; A tutorial on *Structured Prediction*.

A Summer School on Non-Convex Optimization in Machine Learning, Mumbai, India. June, 2015. A tutorial on *Learning, Inference and Supervision for Structured Prediction Tasks*.

ACL'14, The Conference of the Association on Computational Linguistics. June, 2014. A tutorial on *Entity Linking and Wikification*.

University of Heidelberg, Germany. October 2013. A Fall School tutorial on *Integer Linear Programming Methods in NLP*.

AAAI'13, The Conference of the Association for the Advancement of Artificial Intelligence, A Tutorial on *Information Trustworthiness*.

Data Science Summer Institute (DSSI) 2007, 2008, 2010, 2011, 2012. A tutorial on Machine Learning in Natural Language Processing.

COLING'12, The International Conference on Computational Linguistics. A Tutorial on *Temporal Information Extraction and Shallow Temporal Reasoning*.

NAACL'12, The North American Conference of the Association on Computational Linguistics. A Tutorial on *Constrained Conditional Models: Structured Predictions in NLP*.

NAACL'10, The North American Conference of the Association on Computational Linguistics. A Tutorial on *Integer Linear Programming Methods in NLP*.

Reconnect 2010, DHS funded course on Information Extraction, University of Southern California, June 2010.

NASSLLI 2010, Program committee for the North American Summer School in Logic, Language and Information.

EACL'09, The European Conference of the Association on Computational Linguistics. A Tutorial on *Constrained Conditional Models*.

ACL'07, The International Conference of the Association on Computational Linguistics. A Tutorial on *Textual Entailment*.

University of Barcelona, March 2004. An invited Ph.D. course on *Machine Learning and Inference in Natural Language Processing*.

ESSLLI 2001, 13th European Summer School in Logic, Language and Information, Helsinki, Finland, Aug. 2001. Advanced course on *Machine Learning: Theory and Application in Natural Language Processing*.

ORGANIZATION (SELECTED EVENTS):

Conference chair, The North American Meeting of the Association for Computational Linguistics (NAACL 2022).

Co-Chair, IJCAI-19, Special track on *Understanding Intelligence and Human-level AI in the New Machine Learning Era*, July 2019

A Dagstuhl Seminar on “*Multi-Document Information Consolidation.*” May 2019. The international Center for Computer Science in Schloss Dagstuhl, Germany. Together with Ido Dagan, Iryna Gurevych, and Amanda Stent.

Conference chair, The Seventh Conference on Natural Language Processing and Chinese Computing(NLPCC 2018).

Co-Organizer, A joint NAACL-ICML Symposium on Machine Learning and Natural Language, Atlanta, GA, June 2013.

Program Co-Chair, The Conference of the Association of Artificial Intelligence 2011 (AAAI 2011), San Francisco, CA. August 2011.

Co-Organizer, A joint ACL-ICML-ICSA Symposium on Machine Learning in Natural Language and Speech, Redmond, WA, June 2011.

Program Co-Chair, The 41st *Annual Meeting of the Association for Computational Linguistics (ACL 2003)*.

Program Co-Chair, The Sixth *Conference on Natural Language Learning (CoNLL-2002)*.

Workshops: Organized and co-chaired a large number of workshops collocated with major conferences. A selected recent subset includes:

AAAI-2016 Workshop on Declarative Learning Based Programming, Phoenix, AZ, February 2016.

NAACL-2012 Workshop on “From Words to Actions”: Semantic Interpretation in an Actionable Context”.

Co-Organizer and Chair, *Advanced Tutorial/Workshop on Learning DNF Rules*. Held in conjunction with the Eleventh International Conference on Machine Learning (ML94) and the Seventh Annual Conference on Computational Learning Theory (COLT 94).

SELECTED NSF AND DOD MEETINGS AND PANELS

CISE/DCA, 1997.

Learning and Intelligent Systems, Principal Investigators Conference, May 1999.

Review panel for NSF-CAREER proposals, 2000, 2001, 2002.
ITR PI meeting, Jan. 2001. National Academy of Science, Cambridge MA.
CDI Panel, 2009.
NSF review workshop on the Penn Discourse Tree Bank, chair of review committee, April 2012.
National Academy of Science panel on Alerts and Warnings using Social Media, Irvine, CA, February 2012.
Various NSF proposal review panels.
ARL planning meetings and panels 2010–2018.
ONR, Multi-University Research Initiative (MURI) Principal Investigators Conference, 2000, 2001, 2002, 2003, 2004, 2008
IARPA FUSE meetings, 2011, 2012, 2013, 2014
IARPA planning meeting: Information Extraction, NLP and Machine Learning, 2008.
AQUAINT Program meetings and Symposia, Principal Investigators Conference, 2004, 2005.
DARPA planning meetings and panels. 2005–2018 (multiple meetings a year).
Department of Homeland Security: presentations at multiple Science & Technology division meetings, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015.
NSF Smart & Connected Health Visioning Meeting, 2017

REVIEW:

INTERNATIONAL REVIEW PANELS: International Review Panels for the European Union; An International Review Panel, China-Singapore Institute of Digital Media; Reviewer for the Israeli National Academy of Science; Reviewer for the Netherlands Organization for Scientific Research (NWO).

NATIONAL REVIEW PANELS: Multiple NSF Review Panels; Reviewer for Army Research Lab (ARL); Reviewer for ONR; Reviewer for DTRA; Reviewer for NSF-EPSCoR.

CONFERENCE REVIEWER: ACL, the Annual Meeting of the Association for Computational Linguistics; COLING, the International Conference on Computational Linguistics, ACM Conference on Computational Learning Theory (COLT); Neural Information Processing Systems (NIPS); The European Conference on Computational Learning Theory; The ACM Symposium on the Theory of Computing (STOC); The IEEE Symposium on the Foundations of Computer Science (FOCS); the International Joint Conference on Artificial Intelligence (IJCAI); Uncertainty in Artificial Intelligence (UAI).

JOURNAL REVIEWER: *Artificial Intelligence*; *Annals of Mathematics and AI*; *Computational Linguistics*; *Distributed Computing*; *IEEE Transactions on Neural Networks*; *IEEE Transactions on Knowledge and Data Engineering*; *IEEE Transactions on Pattern Analysis and Machine Intelligence*; *Information and Computation*; *Journal of Artificial Intelligence Research*; *Journal of Machine Learning Research*; *Machine Learning*; *Natural Language Engineering*; *SIAM Journal of Computing*; *The Journal of Logic Programming*; *The Constraints Journal*, *Theoretical Computer Science*.

DISTINGUISHED LECTURES AND KEYNOTE TALKS

Fidelity AI Center, NYC, NY, February 2024. An Invited Talk on *Large Language Models that Reason and Orchestrate*

Department of Computer Science, University of Toronto, Toronto, Canada, December 2023. An Invited Talk on *Large Language Models that Reason and Orchestrate*

Amazon Research Days 2023, Bangalore, India, November 2023. A Keynote Talk on *Large Language Models that Reason and Orchestrate*

Southern California NLP Symposium, Los Angeles, CA, November 2023. A Keynote Talk on *Large Language Models that Reason and Orchestrate*

Amazon Foundation Model Science Symposium, Seattle, WA, November 2023. A Keynote Talk on *Large Language Models that Reason and Orchestrate*

Amazon Prime Video Europe, London, UK, November 2023. A Keynote Talk on *The Science of Generative AI: Focus on Reasoning*

George Mason University, Department of Computer Science Distinguished Lecture Series, Fairfax, VA, October 2023. *The Science of Generative AI: Focus on Reasoning*

European Lab for Learning & Intelligent Systems (ELLIS) Symposium on Large Language and Foundation Models, Amsterdam, The Netherlands, October 2023. A Keynote Talk on *The Science of Generative AI: Focus on Reasoning*

LLMDB 2023, First International Workshop on Databases and Large Language Models, VLDB2023, Seattle, WA, September 2023. A Keynote Talk on *The Science of Generative AI: Focus on Reasoning*

Amazon Prime Video Science Summit, Seattle, WA, August 2023. A Keynote Talk on *The Science of Generative AI: Focus on Reasoning*

Amazon Consumer Science Summit, Suncadia, WA, September 2023. A Keynote Talk on *The Science of Generative AI: Focus on Reasoning*

Deep Learning 2023, Fondazione Bruno Kessler, Trento, Italy, June 2023. An Invited Talk on *The Science of Generative AI: Focus on Reasoning*

aiDM 2023 Sixth International Workshop on Exploiting Artificial Intelligence Techniques for Data Management, SIGMOD2023, Seattle, WA, June 2023. A Keynote Talk on *The Science of Generative AI: Focus on Reasoning*

Amazon AWS Worldwide Specialist Organization (WWSO), Technical Field Community (TFC) Summit, Worldwide, Virtual, June 2023. A Keynote Talk on *The Science of Generative AI: Focus on Reasoning*

Amazon Alexa Shopping, Senior Tech Summit, Virtual, June 2023. An Invited Talk on *The Science of Generative AI: Focus on Reasoning*

Moody's Executive Briefing, NYC, NY, May 2023. *The Science of Generative AI*

Mohamed bin Zayed University of Artificial Intelligence (MBZUAI), Executive Program, Abu Dhabi, May 2023. An Invited Talk on *Reasoning in Natural Language*

Open Data Science Conference (ODSC), Boston, MA, May 2023. An Invited Talk on *Reasoning in Natural Language*

Computer Science Distinguished Lecture Series, Michigan State University, East Lansing, Michigan, MI, April 2023. *Reasoning in Natural Language*

Computer Science Distinguished Lecture Series, University of Rochester, Rochester, NY, April 2023. *Reasoning in Natural Language*

National Institute of Standards and Technology (NIST), A Panel Presentation on the Generative AI Era.

Symbolic-Neural Learning Workshop (SNL2022), Nagoya, Japan, July 2022. A Keynote Talk on *It's Time to Reason*.

8th Italian Conference on Computational Linguistic, Milan, Italy, June 2022. A keynote speech on *It's Time to Reason*.

Samsung AI workshop on "When Deep Learning Meets Logic", Jun 2022. A keynote speech on *TBD*.

ACL, The Annual Meeting of the Association for Computational Linguistics, Dublin, Ireland, May 2022. An Invited Talk on *The Next Big Ideas*.

IBM Neuro-Symbolic AI Workshop, January 2022. A keynote speech on *It's Time to Reason*.

School of Engineering and Applied Science (SEAS) and Penn School of Medicine (PSOM) Workshop on Clinician-centric Trustworthy AI, April 2022. A keynote speech on *Navigating Information Pollution*.

Amazon, Customer Service Science Talk Series, February 2022. An Invited Talk on *Supporting Communication with Computers*.

Argonne AI Distinguished Lecture, Argonne National Labs, January 2022. A keynote speech on *It's Time to Reason*.

EMNLP'21 Workshop on Evaluation & Comparison of NLP Systems (Evel4NLP), Dominican Republic, November, 2021. *Evaluating Evaluation*.

EMNLP'21 Workshop on Simple and Efficient Natural Language Processing (SustaiNLP 2021), Dominican Republic, November, 2021. *It's Time to Reason*.

West Coast NLP (WeCNLP), Virtual, October 2021, *Introductory Presentation..*

Symposium on AI Challenges, University of California, Los Angeles, October 2021, *It's time to Reason*.

Symposium on Preventing Medical Misinformation: Cross-Disciplinary Approaches, University of Pennsylvania, Medical Communication Research Institute, October 2021, *Navigating Information Pollution: A Perspective from AI & Natural Language Processing*.

ACL'21 Workshop on Interactive Learning for Natural Language Processing, ACL, Virtual, August, 2021. *Reasoning for Communicating with Agents*.

ICLR'21 Workshop on Weakly Supervised Learning, ICLR, Virtual, May, 2021. *Natural Language Understanding with Incidental Supervision*.

ETH Zurich, Department of Computer Science, Distinguished Lecture Series, Zurich, Switzerland. April 2021. *It's Time to Reason*.

University of Edinburgh, School of Informative, Distinguished Lecture Series, Edinburgh, Scotland. February 2021. *It's Time to Reason*.

National Institute of Standards and Technology (NIST), Text Analysis Conference (TAC), A keynote Lecture, February 2021. *Natural Language Understanding with Incidental Supervision*.

Allen Institute for AI (AI2), Seattle, WA., February 2021. A Distinguished Lecture Series talk on *Evaluating Evaluation*.

Computer Science Distinguished Lecture Series, University of Southern California, Los Angeles, CA, January 2021. *It's Time to Reason*.

Penn in India, A School of Engineering and Applied Science Event, University of Pennsylvania, PA, January 2021. *Information Extraction In Low Resource Languages*

Heilmeier Award Lecture., School of Engineering and Applied Science, University of Pennsylvania, PA, January 2021. *It's Time to Reason*.

Dean's Distinguished Speakers Series, The Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA, January 2021. *Natural Language Understanding with Incidental Supervision*.

Computer Science Distinguished Lecture Series, University of Massachusetts, Lowell, MA, December 2020. *It's Time to Reason*.

Baidu Research, Distinguished Lecture Series, Baidu Research, Mountain View, CA, October 2020. *It's Time to Reason*.

The Chinese National Conference on Social Media Processing (SMP). Keynote speaker: Forum on Argumentation Mining, China. September 2020. Keynote Speaker. *Navigating Information Pollution*.

Computer Science Distinguished Lecture Series, University of California at Santa Barbara, Santa Barbara, CA, February 2020. *It's Time to Reason*.

AAAI'20 Workshop on Reasoning for Complex QA, AAAI, New York, NY, February, 2020. *Why (and how) should we study Question Answering?*.

AAAI'20 Workshop on Knowledge Discovery from Unstructured Data in Financial Services, AAAI, New York, NY, February, 2020. *Learning from Incidental Supervision Signals*.

EMNLP'19 Workshop on Deep Learning for Low-Resource Languages, EMNLP, Hong Kong, November, 2019. *Information Extraction In Low Resource Languages: Incidental Supervision and Multilingual Representations*.

Computer Science Distinguished Lecture Series, University of Indiana, Bloomington, September 2019. *It's Time to Reason*.

EmTech Mexico An MIT Technology Review Event, Mexico City, Mexico, July 2019. *Navigating Information Pollution: A perspective from AI and Natural Language Understanding*.

Google Workshop on Conversational System. Mountain View, CA, June 2019. *Reasoning Interactively about Text.*

Computer Science Distinguished Lecture Series, University of California, Los Angeles, CA May 2019. *Beyond Classification: Reasoning for Natural Language Understanding.*

Simon Foundation Symposium on New Directions in Theoretical Machine Learning, Krn, Germany, May 2019. *Incidental Supervision and Reasoning.*

The Dagstuhl Seminar on “Multi-Document Information Consolidation” April 2019. The international Center for Computer Science in Schloss Dagstuhl, Germany. *On Reasoning in Multi-Documents Context.*

The College of Information Sciences and Technology, Distinguished Lecture Series, Penn State University, April 2019. *Natural Language Understanding with Incidental Supervision.*

The 2019 ByteDance AI Symposium, Tsinghua University, Beijing, China. January 2018. Keynote Speaker. *Natural Language Understanding with Incidental Supervision.*

EmTech China An MIT Technology Review Event, Beijing, China, January 2019. *Navigating the Information Polluted World: Challenges and Opportunities.*

The 2018 Fudan Data Science Conference, Shanghai, China. December 2018. Keynote Speaker. *Natural Language Understanding with Incidental Supervision.*

Google Assistant and Dialog Workshop. Sunnyvale, CA, June 2018 Sunnyvale, CA June 2018. *Incidental Supervision.*

The North American Conference of the Association of Computational Linguistics Workshop on New Forms of Generalization in Deep Learning and Natural Language Processing, New Orleans, LA. June 2018. *Incidental Supervision.*

EmTech China An MIT Technology Review Event, Beijing, China, January 2018. *Making Sense of Unstructured Data: The Emergence of AI.*

Computer Science Distinguished Lecture Series, Northwestern University, Chicago IL, October 2017. *Natural Language Understanding with Incidental Supervision.*

IJCAI John McCarthy Award Lecture., IJCAI 2017, Melbourne, Australia, August 2017. *The Necessity Of Learning and Reasoning: An Natural Language Understanding Perspective.*

Illinois Health Data Analytics Summit, University of Illinois, May 2017. *Natural Language Processing in Support of Healthcare*

NSF Smart & Connected Health Visioning Meeting, Boston University, March 2017. *Natural Language Processing in Support of Healthcare*

American Bar Association (ABA) Antitrust Law Spring Meeting, Washington DC, March 2017. *Expert Testimony of the Future of Machine Learning in the Legal Domain*

Workshop on India's Tryst with Artificial Intelligence, Bangalore, India, January 2017. *Making Sense of Unstructured Data: The Emergence of AI*

NIPS 2016 Workshop on Cognitive Computation, Barcelona, Spain, December 2016. A keynote speech on *Natural Language Understanding with Common Sense Reasoning.*

15th Conference of the Italian Association for Artificial Intelligence, Genoa, Italy, November 2016. A keynote speech on *Inducing Semantics with Minimal (or No) Supervision*.

Computer Science Distinguished Lecture Series, Northeastern University, Boston MA, November 2016. *Making Sense of (And Trusting) Unstructured Data*.

The Conference of the Association of Computational Linguistics, The 7th Workshop on Cognitive Aspects of Computational Language Learning, August 2016. Berlin, Germany. An invited talk on *Starting from Scratch in Semantic Role Labeling*.

The North American Conference of the Association of Computational Linguistics, The 4th Workshop on EVENTS, June 2016. San Diego, CA. An invited talk on *Events in Natural Language Text*.

The University of Amsterdam, A EU workshop on Semantic Processing. June 2016. Amsterdam, The Netherlands. An invited talk *Inducing Semantics with Minimal (or No) Supervision*.

University of Wisconsin, Madison, WI, May 2016. Department of Computer Science Distinguished Lecture Series on Data Management and Analysis . *Making Sense of (And Trusting) Unstructured Data*.

Rutgers University, New Brunswick, NJ, April 2016. Department of Homeland Security Retreat. An Invited Lecture on *Information Trustworthiness*.

University of Pennsylvania, Philadelphia, PA, February 2016. Department of Computer Science Distinguished Lecture Series. *Constraints Driven Learning and Inference for Natural Language Understanding*.

AAAI'16, Phoenix, AZ. A workshop on Declarative Learning Based Programming, January 2016. A keynote speech on *Declarative Learning Based Programming*.

The University of Utrecht, The Netherlands, October 2015. A workshop on Common Sense and Logic for Reasoning in Natural Language. Keynote Speaker. *Common Sense Reasoning for Natural Language Understanding*.

NLPCC, Nanchang, China, October 2015. The 4th China Computer Federation Conference on Natural Language Processing & Chinese Computing. Keynote Speaker. *Learning and Inference for Natural Language Understanding*.

TSD, Plzen, Czech Republic, September 2015. The 18th International Conference on Text, Speech and Dialogue. Keynote Speaker. *Learning and Inference for Natural Language Understanding*.

IJCAI'15, Buenos Aires, Argentina, July 2015. The 10th International Workshop on Neural-Symbolic Learning and Reasoning (NeSy'15). Distinguished Workshop Speaker. *Natural Language Understanding with Common Sense Reasoning*.

Microsoft Research, Redmond, WA, July 2015. An Invited Lecture in the MSR Faculty Summit. *Common Sense Reasoning for Natural Language Understanding*.

Data Science Initiative, Distinguished Lecture Series, Boston University, Boston MA, April 2015. *Learning and Inference for Natural Language Understanding*.

Advanced Digital Sciences Center, Singapore, December 2014. Workshop on Natural Language Processing. A keynote talk on *Learning and Inference for Natural Language Understanding*.

Rochester Institute of Technology, Rochester, NY, October 2014. Distinguished Computational Linguistics Lecture on *Learning and Inference for Natural Language Understanding*.

Rutgers University, New Brunswick, NJ, October 2014. A Fusion Fest Workshop in honor of Paul Kantor. An Invited Lecture on *Making Sense of Unstructured Data*.

Andreessen Horowitz, Academic Roundtable. Palo Alto, CA. September 2014. *Data Science: Making Sense of Unstructured Data*.

AutoML, an ICML workshop, June 2014. Beijing, China. A keynote speech on *Learning Based Programming*.

EACL'14, The European Conference on Computational Linguistics. Gutenberg, Sweden, April 2014. A keynote speech on *Learning and Inference for Natural Language Understanding*.

Allen Institute for AI (AI2), Seattle, WA., March 2014. A Distinguished Lecture Series talk on *Learning and Inference for Natural Language Understanding*.

ITA 2014, The Information Theory and Applications Workshop, San Diego, CA, February 2014. An invited talk on *Amortized Integer Linear Programming Inference*.

NIPS 2013 Workshop on Output Representation Learning, Lake Tahoe, CA, December 2013. A keynote speech on *Amortized Integer Linear Programming Inference*.

Fondazione Bruno Kessler, The Center for Information and Communication Technology, Trento, Italy, November 2013. Distinguished Lecture Colloquium on *Amortized Integer Linear Programming Inference*.

JSSP 2013 - Joint Symposium on Semantic Processing, Trento, Italy, November 2013. A keynote speech on *Computational Frameworks for Supporting Textual Inference*.

Institute of Computational Linguistics, Distinguished Lecture Colloquium, The University of Heidelberg, Heidelberg, Germany, October 2013. *Better Natural Language Analysis and Amortized Integer Linear Programming*.

The CIKM Workshop on Exploiting Semantic Annotations in Information Retrieval (ESAIR'13), San Francisco, CA, October 2013. A keynote speech on *Computational Frameworks for Semantic Analysis and Wikification*.

The University of Washington & Microsoft Research Summer Institute on Understanding Situated Language in Everyday Life, July 2013. A keynote speech on *Starting from Scratch in Semantic Role Labeling*.

The Second AAAI workshop on Combining Constraint Solving with Mining and Learning, July 2013. A keynote speech on *Amortized Integer Linear Programming Inference*.

Inferning: Interactions between Learning and Inference, an ICML workshop, June 2013. A keynote speech on *Amortized Integer Linear Programming Inference*.

Structured Learning: Inferring Graphs from Structured and Unstructured Inputs, an ICML Workshop, June 2013. A keynote speech on *Decomposing Structured Prediction via Constrained Conditional Models*.

22nd Annual Belgium-Netherlands Conference on Machine Learning (BENELEARN-2013), Nijmegen, the Netherlands, June 2013. A keynote speech on *Constrained Conditional Models: Towards Better Semantic Analysis of Text*.

KU Leuven Distinguished Lecture Series, Leuven, Belgium, May 2013. *Constrained Conditional Models: ILP Formulations for Natural Language Understanding*.

Computational Science and Engineering Center, University of Illinois. Keynote Speech at the Annual Meeting, April 2013. *Making Sense of and Trusting, Unstructured Data*.

A COLING Workshop on Information Extraction & Entity Analytics on Social Media Data, December 2012. A keynote speech on *Constraints Driven Information Extraction and Trustworthiness*.

The Annual Italian Operation Research Meeting (AIRO 2012), Salerno, Italy, September 2012. A keynote speech on *Constrained Conditional Models Integer Linear Programming Formulations for Natural Language Understanding*.

The 2012 Workshop on Statistical Relational AI (STAR-AI 2012), Catalina Island, CA, August 2012. A keynote speech on *Constrained Conditional Models Integer Linear Programming Formulations for Natural Language Understanding*.

An NAACL'12 Workshop on "From Words to Actions", Montreal, Canada, June 2012. A keynote speech on *Learning from Natural Instructions*.

Semantic Representation and Inference, A Workshop sponsored by the NSF and the Stanford Center for Language and Information (CLSI), Stanford, CA, March 2012. *Constrained Conditional Models for Natural Language Understanding*.

National Academy of Science Workshop on Alerts and Warnings using Social Media, Irvine, CA, February 2012. *Trustworthiness of Information: Can you believe what you read?*.

NIPS'11, Workshop on Domain Adaptation, Granada, Spain, December 2011. *Adaptation without Retraining*.

IJCAI'11, Workshop on Agents Learning Interactively from Human Teachers, Barcelona, Spain, July 2011. *Learning from Natural Instructions*.

National University of Singapore, Department of Computer Science, Distinguished Lecture Series, Jun. 2011, *Constraints Driven Structured Learning with Indirect Supervision*.

The Dagstuhl Seminar on "Constraint Programming meets Machine Learning and Data Mining." May 2011. The international Center for Computer Science in Schloss Dagstuhl, Germany. *Integer Linear Programming for NLP and Constraints Driven Structured Learning*.

University of Maryland at College Park, Workshop on Multimedia Analytics, the Visual Analytics Community Consortium, May 2011. *Data Science: Challenges, Opportunities and Some Solutions*.

University of Pennsylvania, Department of Computer Science, Distinguished Lecture series., Nov. 2010. *Constraints Driven Structured Learning with Indirect Supervision*.

Microsoft Research Lab., Beijing, China August 2010, *Constraints Driven Structured Learning with Indirect Supervision*.

ACL-2010 The Named Entities Workshop, July 2010, Uppsala, Sweden. *Constraints Driven Structured Learning with Indirect Supervision*.

ICML-2010 Workshop on Budgeted Machine Learning, June 2010, Haifa, Israel. *Constraints Driven Structured Learning with Indirect Supervision*.

DARPA Meeting on Machine Reading, St. Petersburg, FL., April, 2010. *Constraints Driven Structured Learning with Indirect Supervision*.

University of Saarland and Max Planck Institute, Saarland, Germany, January, 2010. *Constrained Conditional Models: Learning and Inference for Natural Language Understanding*.

NATO Advanced Workshop on Web Intelligence and Security, Dead Sea, Israel, November 2009. *Title: Making Sense of Unstructured Textual Data*.

University of Pittsburgh, Department of Computer Science, Distinguished Lecture series., Oct. 2009. *Constrained Conditional Models: Learning and Inference for Natural Language Understanding*.

Integer Linear Programming for Natural Language Processing, June 2009. Workshop co-located with HLT-NAACL 2009. *Title: Constrained Conditional Models: Learning and Inference for Natural Language Understanding*.

International Conference on Machine Learning and Applications (ICMLA), San Diego, California. Keynote speaker. Dec. 2008. *Title: Constrained Conditional Models: Learning and Inference for Natural Language Understanding*.

Discovering Opportunities for Information Extraction in Digital Government, An NSF Sponsored Joint US-China meeting, UCS/ISI, Los Angeles, California. Sept. 2008. *Title: Constraints as Prior Knowledge for Information Extraction*.

Kauffman Foundation's Meeting on Global Development, Information Technology, and the Frontiers of Knowledge. Organized by the Cline Center for Democracy, Chicago, IL. April 2008. *Title: Machine Learning and Natural Language Processing for Information Access and Extraction*.

NATO workshop on Security, Informatics and Terrorism Ben-Gurion University, Beer-Sheva, Israel, June 2007. *Title: Semantic Abstraction and Integration across Text Documents and Data Bases*.

IBM Haifa Research Lab (HRL) Annual seminar on Machine Learning Haifa, Israel, June 2007. *Title: Global Learning and Inference with Constraints*.

DIMACS-ONR workshop on Data Analysis, Rutgers University, NJ, April 2007. *Title: Global Learning and Inference with Constraints*.

A Workshop on Machine Learning in Natural Language Processing CRI, The Caesarea Rothchild Institute at the University of Haifa, Haifa, Israel, December 2006. *Title: Global Inference and Learning: Towards Natural Language Understanding*.

AAAI-06, The Conference of the American Association of Artificial Intelligence, Boston, MA., July 2006. *Title: Global Inference and Learning: Towards Natural Language Understanding.*

Computationally Hard Problems and Joint Inference in Speech and Language, New York, NY., June 2006 (Workshop co-located with HLT-NAACL 2006). *Title: Global Inference in Learning for Natural Language Processing.*

AAAI-05 Sister Conference Highlights, Pittsburgh, Pennsylvania, July 2005. *Trends in Natural Language Research.* Representing The Association of Computational Linguistics (ACL) in the AAI-05 Sister Conference.

Empirical Modeling of Semantic Equivalence and Entailment, Ann Arbor, Michigan, June 2005 (Workshop co-located with ACL-2005). *Knowledge Representation and Inference Models for Textual Entailment.*

The Learning Workshop, Snowbird, Utah, April 2005. *An Inference Model for Semantic Entailment in Natural Language.*

The Dagstuhl Seminar on Probabilistic, Logical and Relational Learning - Towards a Synthesis. Jan. 2005. The international Center for Computer Science in Schloss Dagstuhl, Germany. *Knowledge Representations, Learning and Inference for Natural Language Understanding.*

ISCOL'04 The Israeli Annual Symposium on Computational Linguistics, Bar Ilan University, Israel, Dec. 2004. *Learning and Inference with Structured Representations.*

BIC'04 International Workshop on Biologically Inspired Computing, Tohoku University, Sendai, Japan. Nov. 2004. *Learning and Inference in Natural Language: from Stand Alone Learning Tasks to Structured Representations.*

CSLI, Stanford University. A Symposium on Reasoning and Learning in Cognitive Systems, Stanford, March 2004. *Learning and Inference with Structured Representations.*

Haifa Winter Workshop on Computer Science and Statistics, The Cesarea Edmond Benjamin de Rothschild Foundation Institute for Interdisciplinary Applications of Computer Science, international workshop on Computer Science and Statistics. Dec. 2003, Haifa, Israel. *Learning and Optimization in Natural Language.*

University of Pennsylvania, Department of Computer Science, Distinguished Lecture series., Nov. 2003. *Learning and Reasoning in Natural Language.*

QA Workshop. An international workshop on Question Answering and Text Summarization (held in conjunction with ACL'03) Sapporo, Japan, July 2003. *Inference with Classifiers.*

ECML'02 and PKDD'02. The 13th European Conference on Machine Learning (ECML'02) and the 6th European Conference on Principles and Practice of Knowledge Discovery in Databases (PKDD'02). Helsinki, Aug. 2002. *Inference with Classifiers.*

EMNLP'02. The 2002 Conference on Empirical Methods in Natural Language Processing. Philadelphia, July, 2002. *Learning and Inference in Natural Language.*

The UIC Informatics Visiting Speaker Program, University of Illinois in Chicago. May 2002. *Learning and Inference in Natural Language.*

The Learning Workshop, Snowbird, Utah, April 2002. *On Generalization Bounds, Projection Profile and Margin Distribution.*

The University of Illinois Symposium on Bioinformatics in Medicine and Biology University of Illinois at Chicago, April, 2002. *Gene Recognition based on DAG Shortest Paths: NLP methods in Bioinformatics.*

Haifa Winter Workshop on Computer Science and Statistics, The Cesarea Edmond Benjamin de Rothschild Foundation Institute for Interdisciplinary Applications of Computer Science, international workshop on Computer Science and Statistics. Dec. 2001, Haifa, Israel. *Understanding Probabilistic Classifiers.*

LLL'01 and ILP'01, Third Learning Language in Logic Workshop and Eleventh International Conference on Inductive Logic Programming (Joint Session). Strasbourg, France. Sept. 2001. *Natural Language Learning: Relational Learning via Propositional Algorithms.*

University of Michigan, Computation, Language, and Information series. Nov. 2000. *Learning in Natural Language: Theory and Algorithmic Approaches.*

CoNLL-2000, Fourth Computational Natural Language Learning Workshop, Sep. 2000, Lisbon, Portugal. *Learning in Natural Language: Theory and Algorithmic Approaches.*

ICML-2000 Workshop on Machine Learning from Sequential and Temporal Data July 2000, Stanford, CA. *Inferring Phrase Structure.*

SOFSEM 99, XXVI-th Seminar on Current Trends in Theory and Practice of Informatics, Nov. 1999, Czech Republic. *Toward a theory of learning coherent concepts.*

DIMACS, The Center for Discrete Mathematics and Theoretical Computer Science, June 98, Rutgers University, NJ. *On the characteristic models of Boolean functions.*

NM'98, *The 7th International Workshop on Nonmonotonic Reasoning*, May 1998, Trento, Italy. *Learning to Make Nonmonotonic Inferences.*

AIMA'97, *The 5th International Symposium on Artificial Intelligence and Mathematics*, Jan. 1998, Fort Lauderdale, FL. Invited session on Boolean functions. *On the characteristic models of Boolean functions.*

MFCS'97, *The 22nd International Symposium on Mathematical Foundations of Computer Science*, Aug. 1997, Slovakia. *Learning to perform knowledge-intensive inferences.*

M3D'97, *Mathematical Techniques to Mine Massive Data Sets*, An NSF Sponsored Tutorial Workshop, July, 1997, University of Illinois, Chicago, IL. *Learning and Managing Knowledge in Large Scale Natural Language Inferences.*

The Dagstuhl Seminar on Theory and Practice of Machine Learning. Jan. 1997. The international Center for Computer Science in Schloss Dagstuhl, Germany. *Learning to perform knowledge-intensive inferences.*

SOFSEM 96, XXIII-rd Seminar on Current Trends in Theory and Practice of Informatics, Nov. 1996, Czech Republic. *Learning in Order to Reason.*

AAAI 96 Fall Symposium on Learning Complex Behaviors in Adaptive Intelligent Systems, Nov. 1996, Cambridge MA. *Topics in Learning to Reason.*

OTHER INVITED TALKS (COLLOQUIA TALKS)

The University of the Basque Country, Spain, April 2022. *It's Time to Reason.*

TU Darmstadt, Darmstadt, Germany, February 2022. *It's Time to Reason.*

University of Texas, Austin, December 2019. *It's Time to Reason.*

Hebrew University of Jerusalem, Jerusalem, Israel, May 2019. *It's Time to Reason.*

ISI/USC. May 2019. *Incidental Supervision for Natural Language Understanding.*

Cornell University, NY. September 2018. *Natural Language Understanding with Incidental Supervision.*

Peking University, China, August 2018. *Natural Language Understanding with Incidental Supervision.*

The D.E. Shaw Group, NYC, New York. May 2018. *Learning and Inference for Natural Language Understanding.*

TU Darmstadt, Darmstadt, Germany, April 2018. *Natural Language Understanding with Incidental Supervision.*

Carnegie Mellon University, Language Technology Institute, Pittsburgh, Pennsylvania, February 2018. *Natural Language Understanding with Incidental Supervision.*

Toutiao Inc., Beijing, China. January 2018. *Learning and Inference Protocols for Recuperating from Information Pollution.*

IBM Research, White Planes, NY., September 2016. *Inducing Semantics with Minimal (or No) Supervision..*

Boston University, Boston, MA., January 2016. *Constraints Driven Learning and Inference for Natural Language Understanding.*

Peking University, Beijing, China, October 2015. *Learning and Inference for Natural Language Understanding.*

Charles University, Prague, Czech Republic, September 2015. *Learning and Inference for Natural Language Understanding.*

INRIA Lille, France, May 2015. *Learning, Inference and Supervision for Structured Prediction Tasks.*

INRIA, Paris, France, May 2015. *Learning and Inference for Natural Language Understanding.*

Wolfram Research, Champaign, IL, March 2014. *Progress in Natural Language Understanding.*

Google, Mountain View, CA., February 2015. *Top Ten Challenges in Natural Language Understanding.*

Ben-Gurion University, Beer-Sheva, Israel, December 2014. *Learning and Inference for Natural Language Understanding.*

Singapore National University, Singapore, December 2014. *Learning and Inference for Natural Language Understanding.*

Singapore University of Technology and Design, Singapore, December 2014. *Making Sense of Unstructured Data.*

Cornell University, Ithaca, NY, November 2014. *Learning and Inference for Natural Language Understanding.*

University of Rochester, Rochester, NY, October 2014. "Big Picture Series" Lecture on *Learning and Inference for Natural Language Understanding.*

Microsoft Research, Beijing, China., June 2014. *Learning and Inference for Natural Language Understanding.*

Rensselaer Polytechnic Institute (RPI), Troy, NY, April 2014. *Learning and Inference for Natural Language Understanding.*

Columbia University, NYC, NY, March 2014. *Learning and Inference for Natural Language Understanding.*

Google, Mountain View, CA., March 2014. *Learning and Inference for Natural Language Understanding.*

University of California, Santa Cruz. February, 2014. *Learning and Inference for Natural Language Understanding.*

*SEM, The Second Joint Conference on Lexical and Computational Semantics. Atlanta, GA, June 2013. A Panel Presentation on *Extended Semantic Role Labeling.*

Google, New York, NY., August 2013. *Better Natural Language Analysis and Amortized Integer Linear Programming.*

IBM Research, White Planes, NY., February 2013. *Making Sense of and Trusting, Unstructured Data.*

West Point Military Academy, Network Science Center, West Point, NY, February 2013. *Making sense of, and Trusting Unstructured Data.*

New York City Natural Language Processing Seminar, City University of NY, NYC, NY, January 2013. *Constrained Conditional Models: Integer Linear Programming Formulations for Natural Language Understanding.*

Health Informatics Technology Center, Workshop at the University of Illinois, Champaign, IL, November 2012. *Constraints Driven Information Extraction in the Medical Domain.*

Johns Hopkins University, The Center for Language and Speech Processing, Baltimore, MD, September 2012. *Constrained Conditional Models: Integer Linear Programming Formulations for Natural Language Understanding.*

University of Illinois Technology Showcase, Champaign, IL, April 2012. *Making Sense of Unstructured Data.*

Illinois Informatics Institute Lecture Series, Champaign, IL, March 2012. *Making Sense of Unstructured Data.*

University of Colorado, Boulder, CO, March 2012. *Learning from Natural Instructions.*

Princeton Plasma Physics Laboratory, Princeton, NJ, February 2012 *Learning and Reasoning for Natural Language Understanding.*

Bar-Ilan University, Ramat Gan, Israel, Dec. 2011. *Learning from Natural Instructions*.

Technion, Israeli Institute of Technology, Haifa, Israel, Dec. 2011. *Learning from Natural Instructions*.

University of Toronto, Computer Science Department, Toronto, Canada, Sept. 2011. *Learning from Natural Instructions*.

Microsoft Research, Redmond, WA., June 2011. *Constraints Driven Learning for Natural Language Understanding*.

Microsoft Research, Cambridge, MA., December 2010. *Constraints Driven Learning with Indirect Supervision*.

Vulcan Labs., Seattle, WA., December 2010. *Constraints Driven Learning*.

Boeing, Bellevue, WA., December 2010. *Constraints Driven Learning*.

IBM Research, White Planes, NY., Sept. 2010. *Constraints Driven Structured Learning with Indirect Supervision*.

Carnegie Mellon University, Language Technology Institute, Pittsburgh, Pennsylvania, Apr. 2010. *Constraints Driven Structured Learning with Indirect Supervision*.

University of Illinois at Urbana/Champaign, Linguistics Department, Urbana, IL, Apr. 2010. *Constrained Conditional Models: Learning and Inference for Natural Language Understanding*.

Hebrew University of Jerusalem, Jerusalem, Israel, Nov. 2009. *Constrained Conditional Models: Learning and Inference for Natural Language Understanding*.

Toyota Technical Institute (TTI), University of Chicago, IL, Sept. 2009. *Constrained Conditional Models: Learning and Inference for Natural Language Understanding*.

The university of Maryland at College Park, Apr. 2009. *Title: Constrained Conditional Models: Learning and Inference for Natural Language Understanding*.

Brigham Young University, Utah, Feb. 2009. *Title: Constrained Conditional Models: Learning and Inference for Natural Language Understanding*.

The University of Tilburg, Tilburg, The Netherlands, Feb. 2009. *Title: Constrained Conditional Models: Learning and Inference for Natural Language Understanding*.

The University of Amsterdam, Amsterdam, The Netherlands, Feb. 2009. *Title: Constrained Conditional Models: Learning and Inference for Natural Language Understanding*.

The University of Illinois at Urbana/Champaign, Computer Science Department, Urbana, IL, Jan. 2009. *Title: Constrained Conditional Models: Learning and Inference for Natural Language Understanding*.

Accenture Research Group, Chicago, IL, Nov. 2008. *Title: Constrained Conditional Models: Learning and Inference for Natural Language Understanding*.

University of Edinburgh, Edinburgh, United Kingdom, February 2008. *Title: Constrained Conditional Models for Global Learning and Inference*.

University of California, Irvine, CA, January 2008. *Title: Global Inference and Learning: Towards Natural Language Understanding*.

The Director's Seminar. The Beckman Institute of Advance Science and Technology, University of Illinois at Urbana-Champaign, Urbana, IL, Nov. 2007. *Title: Natural Language Processing via Global Inference and Learning.*

University of Washington, Seattle, WA, April 2007. *Title: Global Inference and Learning: Towards Natural Language Understanding.*

Bar-Ilan University, Ramat Gan, Israel, Jan. 2007. *Title: Global Inference and Learning.*

Technion, Israeli Institute of Technology, Haifa, Israel, Dec. 2006. *Title: Global Inference and Learning: Towards Natural Language Understanding.*

Lawrence Livermore National Laboratory, Livermore, CA, October 2006. *MIAS: Multimodal Information Access and Synthesis.*

Thompson Legal & Regulatory , St. Paul, MN, May 2006. *Learning and Inference for Natural Language Processing and Intelligent Access to Information.*

Massachusetts Institute of Technology, MA, Apr. 2006. *Global Inference in Learning for Natural Language Processing.*

Boeing, Bellevue, WA, Dec. 2005. *Learning and Inference in Natural Language Processing and Intelligent Information Access.*

Cornell University, NY, Dec. 2005. *Global Inference in Learning for Natural Language Processing.*

University of Texas at Austin, TX, Nov. 2005. *Global Inference in Learning for Natural Language Processing.*

Brown University, RI, August 2005. *Global Inference in Learning for Natural Language Processing.*

Lawrence Livermore National Laboratory, Livermore, CA, August 2005. *Learning and Inference in Natural Language Processing and Intelligent Information Access.*

Yahoo!, Sunnyvale, CA. August 2005. *Learning and Inference in Natural Language Processing and Intelligent Information Access.*

Institute for Theoretical Computer Science, Technische Universit?t Graz, Austria. Feb. 2005. *Learning and Inference in Natural Language: from Stand Alone Learning Tasks to Structured Representations.*

Haifa University, Haifa, Israel. Dec. 2004. *Learning and Inference with Structured Representations.*

Tokyo University, Tokyo, Japan. Nov. 2004. *Learning and Inference with Structured Representations.*

Universitat Pompeu Fabra, Barcelona, Spain. March 2004. *Learning and Inference with Structured Representations.*

Indian Institute of Technology (IIT) New Delhi, India. February 2004. *Learning and Inference in Natural Language.*

IBM Research Lab, New Delhi, India. February 2004. *Learning and Inference in Natural Language.*

Stanford University. March 2003. *Learning and Inference in Natural Language*.

ISI/USC. March 2003. *Learning and Inference in Natural Language*.

IBM Research, Almaden, CA., March 2003. *Learning and Inference in Natural Language*.

Google, Mountain View, CA., March 2003. *Learning and Inference in Natural Language*.

NIST, National Institute of Standards and Technology. Nov. 2002. *Reasoning with Classifiers: Theory and Application with Natural Language*.

IBM Research, White Planes, NY., Jun. 2002. *Learning and Inference in Natural Language*.

University of Alberta, Edmonton, Canada, Department of Computer Science Colloquium, Apr. 2002. *Natural Language Learning: Relational Learning via Propositional Algorithms*.

Ohio State University, OH., Department of Computer Science Colloquium, Apr. 2001. *Learning in Natural Language. Theory and Algorithmic Approaches*.

Technion, Israel, Department of Computer Science Colloquium, Dec. 2000. *Inference with Classifiers*.

IBM Research, White Planes, NY., Oct. 2000. *Context Sensitive Inferences*.

Department of Computer Science, University of Colorado at Boulder, Apr., 2000. *Learning in Natural Language*.

Department of Mathematics and Computer Science, Bar Ilan University, Israel. Dec., 1999. *Learning in Natural Language*.

Information Technology Research Institute (ITRI), University of Brighton, Brighton, UK. Dec., 1999. *Learning in Natural Language*.

Division of Informatics, University of Edinburgh, Edinburgh, UK. Dec., 1999. *Learning in Natural Language*.

Division of Engineering and Applied Science, Harvard University. Nov., 1999. *A learning centered approach to knowledge-intensive inferences*.

IBM Research, October, 1999. *A learning centered approach to knowledge-intensive inferences*.

Department of Mathematics and Computer Science, University of Waterloo, Canada, August, 1998 Title: *Learning and Managing Knowledge in Large Scale Natural Language Inferences*.

Department of Computer Science, Lucent Technologies, Bell Labs, May, 1997 Title: *Learning to perform knowledge-intensive inferences*.

Department of Computer Science, University of Illinois at Chicago, May, 1997 Title: *Learning to perform knowledge-intensive inferences*.

Department of Computer Science, University of Illinois at Urbana Champaign, May, 1997 Title: *Learning to perform knowledge-intensive inferences*.

Department of Computer Science, NEC Research institute, Princeton, April, 1997 Title: *Learning to perform knowledge-intensive inferences*.

Department of Computer Science, University of Pennsylvania, April, 1997 Title: *Learning to perform knowledge-intensive inferences*.

Department of Computer Science, Cornell University, April, 1997 Title: *Learning to perform knowledge-intensive inferences.*

Department of Computer Science, Ben Gurion University, Israel, March, 1997 Title: *Learning to perform knowledge-intensive inferences.*

Department of Computer Science, Tel Aviv Univ., Israel, June 1996 Title: *Learning to Correct Context-Sensitive Spelling Mistakes.*

Department of Computer Science, Technion, Israel, May 1996 Title: *Learning to Correct Context-Sensitive Spelling Mistakes.*

Department of Computer Science, Ben Gurion Univ., Israel, March 1996 Title: *Learning in Order to Reason.*

Israeli Symposium of Artificial Intelligence, February, 1996 Title: *Learning in Order to Reason.*

Department of Computer Science, Columbia Univ., NY, May 1995 Title: *Learning in Order to Reason.*

MIT, AI Lab, Cambridge MA., April 1995, Title: *Learning in Order to Reason.*

AT&T Bell Laboratories, Murray Hill, NJ, March, 1995. Title: *Learning in Order to Reason.*

NECI, Princeton, NJ, Feb. 1995 Title: *Learning in Order to Reason.*

Harvard's Society of Fellows, Dec 1994.

AT&T Bell Laboratories, Murray Hill, NJ, May, 1994. Title: *Reasoning with Models.*

Department of Computer Science, Rutgers University, April, 1994. Title: *Reasoning with Models.*

STUDENTS

Graduated 42 Ph.D Students, 36 M.S. students, and over 50 undergraduate research assistants.

Graduate students got offers from universities such as Cambridge, Michigan, Purdue, Univ. of Pennsylvania, UCLA, Johns Hopkins Univ., University of Rochester, Univ. of Virginia, and Utah; research labs such as Google Research, Microsoft Research, Amazon, and IBM, and have been post-docs at places such as MIT, Stanford, Columbia and Michigan.

Four undergraduate research assistants were nationally recognized by the Computing Research Association (CRA) for the Outstanding Undergraduate Research Award. Two with honorable mentions, and two were finalists for the Outstanding Undergraduate Award. Several of the undergraduate students went on to pursue Ph.Ds at MIT, Stanford and CMU. One undergraduate research assistant received the University of Illinois Undergraduate Employee of the Year Award (Honorable Mention).

Served on over 80 PhD committees at many institutions, including PhD committees in Belgium, Canada, France, Germany, Israel, Italy, the Netherlands, Spain, and the UK.

LONG TERM VISITORS, POST-DOCS, RESEARCH FACULTY AND RESEARCH STAFF

1. Yuval Krymolowski, Bar Ilan University, Israel, 1999.
2. Chang-Hwan Lee, DongGuk Univ. Seoul, Korea, 2001 - 2002.
3. Xavier Carreras Perez, Universitat Politecnica de Catalunya, Spain, Spring 2002.
4. Charles La, CalTech, Summer 2003.
5. Roxana Girju, Visiting Research Assistant Professor, Aug. 2004 – Aug. 2005.
6. Fabio Aioli, Post-Doctoral Researcher, Nov. 2004 – May 2005.
7. Vasin Punyakanok, Post-Doctoral Researcher, Aug. 2005 – Aug 2006.
8. Mark Sammons, Research Programmer, Aug. 2004 – April 2007; Research Scientist, April 2007 – 2009; Principal Research Scientist, Nov. 2009 – June 2018.
9. Hiroya Takamura, Tokyo Institute of Technology, Visiting Assistant Professor, July 2006 – March 2007.
10. Sander Canisius, Tilburg University, The Netherlands, Sept. 2007 – Nov. 2007.
11. Adam Vogel, Research Programmer, March 2008 – September 2009.
12. Ivan Titov, Post-Doctoral Researcher, Feb. 2008 – September 2009.
13. James Clarke, Post-Doctoral Researcher, June 2008 – September 2010.
14. Shankar Vembu, Post-Doctoral Researcher, September 2009 – September 2010.
15. Joshua Gioja, Research Programmer, March 2009 – March 2012.
16. Yee Seng Chang, Post-Doctoral Researcher, November 2009 – November 2011.
17. Wei Lu, Post-Doctoral Researcher, October 2011 – August 2012.
18. Jeff Pasternack, Post-Doctoral Researcher, May 2012 – October 2012.
19. Yao-zhong Zhang, Post-Doctoral Researcher, September 2012 – October 2013.
20. Angel Conde Manjon, University of the Basque Country, Ph.D. Student, Fall 2012, Fall 2013.
21. Christos Christodouloupoulos, Post-Doctoral Researcher, August 2013 – Present.
22. Yangqiu Song, Post-Doctoral Researcher, October 2013 – April 2016.
23. Parisa Kordjamshidi, Post-Doctoral Researcher, December 2013 – August 2016.
24. Michael Roth, Post-Doctoral Researcher, September 2016 – April 2017.
25. Snigdha Chaturvedi, Post-Doctoral Researcher, July 2016 – July 2018.
26. Wenpeng Yin, Post-Doctoral Researcher, September 2017 – August 2019.
27. Hegler Tissot, Research Engineer, June 2019 – Present.
28. Muhao Chen, Post-Doctoral Researcher, August 2019 – July 2020.
29. Elijah Sulem, Post-Doctoral Researcher, August 2019 – July 2022.
30. Hongming Zhang, Visiting PhD student, February 2020 – July 2022.
31. Rotem Dror, Post-Doctoral Researcher, August 2020 – July 2023.

32. Will Bruno, Post-Doctoral Researcher, November 2020 – July 2022.
33. Vivek Gupta, Post-Doctoral Researcher, July 2023 – Present.

UNIVERSITY SERVICE

Served on a large number of Departmental and College of Engineering Committees.

Key leaderships roles include:

- Faculty Promotion Committee (FPC), College of Engineering, University of Pennsylvania 2018–2020.
- Chair of the UPenn School of Engineering and Applied Science Machine Learning Recruiting Committee 2018–2019.
- Chair of the UPenn Dept. of Computer and Information Science Faculty Recruiting Committee 2017–2018.
- Chair of the Dept. of Computer Science Graduate Admission Committee (UIUC) 2014–2016.
- Chair of the UIUC Dept. of Computer Science Advisory Committee (elected), 2005–2010. Responsible, among other issues, for a five year evaluation of the department head.
- Chair of the UIUC Dept. of Computer Science Laboratory Assignment Committee, 2006.
- Area Chair for the Artificial Intelligence (9 faculty, around 60 graduate students).
- College of Engineering Dean’s Strategic Planning Advisory Group, 2002, 2003.
- College of Engineering Committee for fostering collaboration between CS and ECE, Co-Chair, 2008.
- Graduate College Fellowship Committee, 2012-2013
- University Scholars Committee, 2012-2014

Publications

BOOKS

- [1] Chen-Tse Tsai, Shyam Upadhyay, and Dan Roth, “Monolingual and Cross-Lingual Entity Discovery and Linking”, Morgan & Claypool Publishers. 2024 (In Press).
- [2] I. Dagan, D. Roth, M. Sammons and F. Zanzotto, “Textual Entailment”, Morgan & Claypool Publishers. 2013.
- [3] W. Burgard, D. Roth, editors, Proceedings of the Twenty-Fifth AAAI Conference on Artificial Intelligence (AAAI-11), San Francisco, CA, USA, Aug. 2011.
- [4] E. Hinrichs and D. Roth, Editors, “ACL’03: 41st Annual Meeting of the Association for Computational Linguistics”, Sapporo, Japan, July 2003.
- [5] D. Roth and A. van den Bosch, Editors, “Proceedings of CoNLL-2002, The Sixth Conference on Natural Language Learning”, Taipei, Taiwan, Aug. 2002. Morgan Kaufman Publishers.

JOURNAL ARTICLES

- [6] Bonan Min, Hayley Ross, Elier Sulem, Amir Pouran Ben Veyseh, Thien Huu Nguyen, Oscar Sainz, Eneko Agirre, Ilana Heintz, and Dan Roth, “Recent Advances in Natural Language Processing via Large Pre-Trained Language Models: A Survey”, *ACM Computing Surveys*, 2, June 2023
- [7] Kevin Xie, Ryan S. Gallagher, Erin C. Conrad, Chadric O. Garrick, Steven N. Baldassano, John M. Bernabei, Peter D. Galer, Nina J. Ghosn, Adam S. Greenblatt, Tara Jennings, Alana Kornspun, Catherine V. Kulick-Soper, Jal M. Panchal, Akash R. Pattnaik, Brittany H. Scheid, Danmeng Wei, Micah Weitzman, Ramya Muthukrishnan, Joongwon Kim, Brian Litt, Colin A. Ellis, and Dan Roth, “Long term epilepsy outcome dynamics revealed by natural language processing of clinic notes”, *Epilepsia*, April 2023.
- [8] Aarohi Srivastava et al. ”Beyond the Imitation Game: Quantifying and extrapolating the capabilities of language models” *Transaction of Machine Learning Research (TMLR)*, 2023.
- [9] Parisa Kordjamshidi, Dan Roth, and Kristian Kersting, “Declarative Learning-Based Programming as an Interface to AI Systems”, *Frontiers of Artificial Intelligence, Sec. Machine Learning and Artificial Intelligence*, Vol. 5, March 2022.
- [10] Kevin Xie, Ryan S. Gallagher, Erin C. Conrad, Chadric O. Garrick, Steven N. Baldassano, John M. Bernabei, Peter D. Galer, Nina J. Ghosn, Adam S. Greenblatt, Tara Jennings, Alana Kornspun, Catherine V. Kulick-Soper, Jal M. Panchal, Akash R. Pattnaik, Brittany H. Scheid, Danmeng Wei, Micah Weitzman, Ramya Muthukrishnan, Joongwon Kim, Brian Litt, Colin A. Ellis, and Dan Roth, “Extracting Seizure Frequency from Epilepsy Clinic Notes: A Machine Reading Approach to Natural Language”, *JAMIA, Journal of American Medical Informatics Association*, 2022.

- [11] Daniel Deutsch, Rotem Dror, and Dan Roth, “A Statistical Analysis of Summarization Evaluation Metrics Using Resampling Methods”, *Transactions of the Association for Computational Linguistics (TACL)*, 2021.
- [12] Daniel Deutsch, Tania Bedrax-Weiss, and Dan Roth, “Towards Question-Answering as an Automatic Metric for Evaluating the Content Quality of a Summary”, *Transactions of the Association for Computational Linguistics (TACL)*, 2021.
- [13] Mor Geva, Daniel Khashabi, Elad Segal, Tushar Khot, Dan Roth, and Jonathan Berant, “Did Aristotle Use a Laptop? A Question Answering Benchmark with Implicit Reasoning Strategies”, *Transactions of the Association for Computational Linguistics (TACL)*, Vol. 11, 2021.
- [14] A. Mrinmaya Sachan, Avinava Dubey, Eduard Hovy, Tom Mitchell, Dan Roth and Eric P. Xing. “Discourse in Multimedia: A Case Study in Information Extraction”, *Computational Linguistics Journal*, Volume 45, Issue 4, Dec. 2019.
- [15] Yangqiu Song, Shyam Upadhyay, Haoruo Peng, Stephen Mayhew, and Dan Roth, “Toward Any-language Zero-shot Topic Classification of Textual Documents”, *Artificial Intelligence*, Volume 274, Sept. 2019, Pp. 133–150.
- [16] M. Das, P. Odom, R. Islam, J. Doppa, S. Natarajan, and D. Roth, “Planning with actively eliciting preferences”, *The Journal of Knowledge-Based Systems*, Vol. 165, Feb. 2019.
- [17] A. Rozovskaya and D. Roth, “Grammar Error Correction in Morphologically Rich Languages: The Case of Russian”, *Transactions of the Association for Computational Linguistics*, Vol 7, 2019.
- [18] Tsai, C-T, S. Mayhew, Y. Song, M. Sammons, and D. Roth, “Illinois CCG LoReHLT 2016 named entity recognition and situation frame systems”, *Machine Translation*, Spacial Issue on NLP in Low Resource Languages. Vol. 32, pp. 91–103, 2018.
- [19] S. Roy and D. Roth, “Mapping to Declarative Knowledge for Word Problem Solving”, *Transactions of the Association for Computational Linguistics (TACL)*, Vol. 6, 2018.
- [20] A. Rozovskaya, M. Sammons, and D. Roth, “Adapting to Learner Errors with Minimal Supervision”, *Computational Linguistics*. Vol. 34:4, December 2017. Accepted for Publication.
- [21] C-T. Tsai and D. Roth, “Multiple Knowledge Bases Concept Grounding via Indirect Supervision”, *Transactions of the Association for Computational Linguistics*, Vol. 4, 2016.
- [22] J. Wieting, M. Bansal, K. Gimpel, K. Livescu and D. Roth, “From Paraphrase Database to Compositional Paraphrase Model and Back”, *Transactions of the Association for Computational Linguistics (TACL)*, Vol. 3, 2015.
- [23] V. Vydiswaran, C. Zhai, D. Roth and P. Pirolli, Overcoming bias to learn about controversial topics. *Journal of the American Society for Information Science and Technology (JASIST)*, 66(8):1655?1672, 2015.

- [24] S. Roy, T. Vieira and D. Roth, “Reasoning about Quantities in Natural Language”, *Transactions of the Association for Computational Linguistics (TACL)*, Vol. 3, 2015.
- [25] A. Conde, M. Larraaga, A. Arruarte, J. A. Elorriaga and D. Roth, “LiteWi: A Combined Term Extraction Method for Eliciting Educational Ontologies from Textbooks”, *Journal of the American Society for Information Science and Technology (JASIST)*, 2015.
- [26] P. Kordjamshidi, D. Roth and M.F. Moens, “Structured Learning for Spatial Information Extraction from Biomedical Text”, *Bacteria Biotopes BMC Bioinformatics*, 2015.
- [27] A. Rozovskaya and D. Roth, “Building a State-of-the-Art Grammatical Error Correction System”, *Transactions of the Association for Computational Linguistics (TACL)*, Vol 2, 2014.
- [28] E. Fersinia, E. Messinaa, G. Felicib and D. Roth, “Soft-Constrained Inference For Named Entity Recognition”, *Journal of Information Processing & Management*, Vol. 50, 2014.
- [29] D. Goldwasser and D. Roth, “Learning from Natural Instructions”, *Machine Learning Journal*, Vol. 94 (2) , January 2014.
- [30] P. Jindal and D. Roth, “Extraction of Events and Temporal Expressions from Clinical Narratives”, *Journal of Biomedical Informatics (JBI)*, Vol. 46, Dec. 2013.
- [31] V. Srikumar and D. Roth, “Modeling Semantic Relations Expressed by Prepositions”, *Transactions of the Association for Computational Linguistics (TACL)*, Vol. 1, 2013.
- [32] P. Jindal and D. Roth, “Using Domain Knowledge and Domain-Inspired Discourse Model for Coreference Resolution for Clinical Narratives”, *JAMIA, Journal of American Medical Informatics Association*, Vol. 20 (2), Mar-Apr 2013.
- [33] Q. Do and D. Roth, “Exploiting the Wikipedia Structure in Local and Global Classification of Taxonomic Relations”. *Natural Language Engineering (NLE)*, Vol. 18 (2), pp. 235-?262, 2012.
- [34] M. Chang, L. Ratinov and D. Roth, “Structured Learning with Constrained Conditional Models”, *Machine Learning Journal*, vol. 88 (3), pp. 399-431, June 2012.
- [35] O. J. Mengshoel, D. Roth and D. Wilkins, “Initialization and Restart in Stochastic Local Search: Computing a Most Probable Explanation in Bayesian Networks”, *IEEE Transactions on Knowledge and Data Engineering*, Vol. 23 (2) Feb. 2011.
- [36] O. J. Mengshoel, D. Roth and D. Wilkins, “Portfolios in Stochastic Local Search: Efficiently Computing Most Probable Explanations in Bayesian Networks”, *Journal of Automated Reasoning*, Vol. 46 (2), Feb. 2011.
- [37] K. Small and D. Roth, “Margin-based active learning for structured predictions”, *International Journal of Machine Learning and Cybernetics (IJMLC)*, 1:3-25, 2010.
- [38] D. Roth and R. Samdani, “Learning Multi-Linear Representations”, *Machine Learning*, Volume 76 (2), July 2009.

- [39] C. J. Godby, P. Hswe, L. Jackson, J. Klavans, Ratinov, D. Roth and H. Cho. “Who’s Who in Your Digital Collection: Developing a Tool for Name Disambiguation and Identity Resolution.” In *Journal of the Chicago Colloquium on Digital Humanities and Computer Science*, Nov. 2009.
- [40] V. Punyakanok, D. Roth and W. Yih, “The Importance of Syntactic Parsing and Inference in Semantic Role Labeling”, *Computational Linguistics, Special Issue on Semantic Role Labeling*. Vol. 34 (2), June 2008.
- [41] E. Daya, D. Roth and S. Wintner “Identifying Semitic Roots: Machine Learning with Linguistic Constraints”, *Computational Linguistics*, Vol. 34 (3), Sept. 2008.
- [42] Z. Zeng, J. Tu, M. Liu, T. S. Huang, B. Pianfetti, D. Roth and S. Levinson, “Audio-Visual Affect Recognition”, *IEEE Transactions on Multimedia*, Vol. (2), pp. 424-428 February 2007.
- [43] O. J. Mengshoel, D. Roth and D. Wilkins, “Controlled Generation of Hard and Easy Bayesian Networks: Impact on Maximal Clique Size in Tree Clustering”, *Artificial Intelligence*, 2006. Vol. 170, 16-17, Nov. 2006, pp. 1137-1174.
- [44] R. Khardon, D. Roth and R. Servedio, “Efficiency versus Convergence of Boolean Kernels for On-Line Learning Algorithms”, *Journal of Artificial Intelligence Research (JAIR)*, Vol. 24, pp. 341–356, July 2005.
- [45] X. Li and D. Roth, “Learning Questions Classifiers: The Role of Semantic Information”. *Natural Language Engineering (NLE)*, Vol. 11(4), 2005.
- [46] S. Agarwal, T. Greapel, R. Herbich, S. Har-Peled and D. Roth, “Generalization Bounds for the Area Under an ROC curve”, *Journal of Machine Learning Research (JMLR)*, vol. 6, pp. 393–425, 2005.
- [47] S. Agarwal, A. Awan and D. Roth, “Learning to Detect Objects in Images via a Sparse, Part-Based Representation”, *IEEE Transactions on Pattern Analysis and Machine Intelligence*, Vol. 20 (11) pp. 1475–1490, 2004.
- [48] R. Greiner, A. J. Grove and D. Roth, “Learning Cost-Sensitive Active Classifiers”, *Artificial Intelligence*, Vol. 139, 2, Sept. 2002, pp. 137–174.
- [49] D. Roth, M-H. Yang and N. Ahuja, “Learning to Recognize 3D Objects”, *Neural Computation*, Vol 14 (5), May 2002, pp. 1071–1104.
- [50] J. Chuang and D. Roth, “Gene recognition based on DAG shortest paths”, *Bioinformatics*, Vol. 17, Suppl. 1, Jul. 2001, pp. S56-S64.
- [51] A. Grove and D. Roth, “Linear concepts and hidden variables”, *Machine Learning*, Vol 42(1/2), Jan. 2001, pp. 123-141.
- [52] R. Khardon, H. Mannila and D. Roth, “Reasoning with Examples: Propositional Formulae and Database Dependencies”, *Acta Informatica* 36, 4, July 1999, pp. 267–286.
- [53] M. Mavronicolas and D. Roth, “Linearizable Read/Write Objects”, *Theoretical Computer Science*. Vol. 220(1), Jun. 1999, pp. 267-319.

- [54] R. Khardon and D. Roth, “Learning to Reason with Restricted View”, *Machine Learning*, Vol 35, 2, May 1999, pp. 95-117.
- [55] A. R. Golding and D. Roth, “A Winnow-Based Approach to Spelling Correction”, *Machine Learning*, Special issue on Machine Learning and Natural Language Processing, Vol. 34, 1/3, Feb. 1999, pp. 107-130.
- [56] H. Aizenstein, A. Blum, R. Khardon, E. Kushilevitz L. Pitt and D. Roth, “On Learning Read- k -Satisfy- j DNF”, *SIAM Journal on Computing*, Vol. 27, 6, Dec. 1998, pp. 1515-1530.
- [57] R. Khardon and D. Roth, “Defaults and Relevance in Model Based Reasoning”, *Artificial Intelligence* (97)1-2, Dec. 1997, pp. 169-193.
- [58] R. Khardon and D. Roth, “Learning to Reason”, *Journal of the Association for Computing Machinery*, Vol. 44, No 5, Sept. 1997, pp. 697-725.
- [59] K. Daniels, V. J. Milenkovic and D. Roth, “Finding the Maximum Area Axis-Parallel Rectangle in a Polygon”, *Computational Geometry: Theory and Applications*, Vol. 7, Nos. 1-2, Jan. 1997, pp. 125-148.
- [60] R. Khardon and D. Roth, “Reasoning with Models”, *Artificial Intelligence*, Vol. 87, 1-2, Nov. 1996, pp. 187-213.
- [61] E. Kushilevitz and D. Roth, “On Learning Visual Concepts and DNF Formulae”, *Machine Learning*, Vol. 24, 1, Jul. 1996, pp. 65-85.
- [62] D. Roth, “On the Hardness of Approximate Reasoning”, *Artificial Intelligence*, Vol. 82, 1-2, Apr. 1996, pp. 273-302.

INVITED PAPERS AND BOOK CHAPTERS

- [63] Sihao Chen, Daniel Khashabi, and D. Roth “Toward Automatic Discovery of Diverse Perspectives”, A Chapter invited to “Web of Perspectives”, Roser Morante , and Sabine Bergler, Editors. 2022.
- [64] N. Rizzolo and D. Roth “Integer Linear Programming for Co-reference Resolution”, A Chapter invited to “Anaphora Resolution: Algorithms, Resources, and Applications”, Massimo Poesio, Roland Stuckardt & Yannick Versley, Editors. 2016.
- [65] J. Pasternack and D. Roth “Judging the Veracity of Claims and Reliability of Sources With Fact-Finders: Judging the Veracity of Claims and Reliability of Sources With Fact-Finders”. A Chapter invited to ”Computational Trust Models and Machine Learning”, Xin Liu, Anwitaman Datta, and Ee-Peng Lim, Editors. Chapman and Hall/CRC 2014.
- [66] A. Bordes , L. Bottou , R. Collobert , D. Roth , J. Weston and L. Zettlemoyer, “ Guest Editors. An Introduction to the special issue on learning semantics”, *Machine Learning Journal*. Vol. 94 Number 2 , January 2014.

- [67] M. Connor, C. Fisher and D. Roth “Starting from Scratch in Semantic Role Labeling: Early Indirect Supervision”, A Chapter invited to ”Cognitive Aspects of Computational Language Acquisition”, Afra Alishahi, Thierry Poibeau, Anna Korhonen, Editors. Springer. 2012.
- [68] M. Sammons, V. Vydiswaran and D. Roth “Recognizing Textual Entailment”, A Chapter invited to ”Multilingual Natural Language Applications: From Theory to Practice”, D. Bikel and I. Zitouni, Editors. Prentice Hall Press, pp. 209-258, 2012.
- [69] D. Roth “Making Sense of Unstructured Data”, A chapter invited to “Web Intelligence and Security: Advances in Data and Text Mining Techniques for Detecting and Preventing Terrorist Activities on the Web”, Mark Last and Abraham Kandel, editors. NATO Science for Peace and Security Series, IOS Press, 2010.
- [70] I. Dagan, B. Dolan, B. Magnini and D. Roth, “Guest Editors Introduction: Recognizing Textual Entailment: Rational, Evaluation and Approaches”, An Introduction to a Special Issue of the Journal of General Engineering. Vol. 1, pp 1-17, 2009, Cambridge University Press.
- [71] D. Goldwasser, M.-W. Chang, Y. Tu and D. Roth, “Constraint Driven Transliteration Discovery,” in Recent Advances in Natural Language Processing. Nicolas Nicolov, eds., Springer-Verlag, 2009.
- [72] A. Klementiev and D. Roth, “Named Entity Transliteration and Discovery in Multilingual Corpora,” in Learning Machine Translation, Cyril Goutte, Nicola Cancedda, Marc Dymetman and George Foster, eds. MIT Press, 2008.
- [73] R. de Salvo Braz, E. Amir and D. Roth, “A Survey of First-Order Probabilistic Models”, in Innovations in Bayesian Networks. D.E. Holmes and L.C. Jain, eds. Springer-Verlag, 2008.
- [74] D. Roth and W. Yih, “Global Inference for Entities and Relations Identification via a Linear Programming Formulation,” in Statistical Relational Learning. L. Getoor and B. Taskar, eds. MIT Press, 2007.
- [75] R. de Salvo Braz, D. Roth and E. Amir, “Lifted First-Order Probabilistic Inference”, in Introduction to Statistical Relational Learning. L. Getoor and B. Taskar, eds. MIT Press, 2007.
- [76] M. Chang, Q. Do and D. Roth, “Multilingual Dependency Parsing: A Pipeline Approach,” in Recent Advances in Natural Language Processing. Nicolas Nicolov, eds., Springer-Verlag, 2006.
- [77] Fung, P. and Roth, D., “Guest Editors Introduction: Machine Learning in Speech and Language Technologies”, An Introduction to a Special Issue of the Machine Learning Journal. Vol. 60, no. 1-3, September 2005.
- [78] D. Roth, “Learning Based Programming”, in *Innovations in Machine Learning: Theory and Applications*, Springer-Verlag book, L.C. Jain and D. Holmes, Eds., 2005.
- [79] X. Li and P. Morie and D. Roth, “ Semantic Integration in Text: From Ambiguous Names to Identifiable Entities”, AI Magazine. Special Issue on Semantic Integration, 2005.

- [80] D. Roth, “Reasoning with Classifiers” (Invited). In Proceedings of *ECML’02, The European Conference on Machine Learning*, Aug. 2002.
- [81] D. Roth, “Learning in Natural Language: Theory and Algorithmic Approaches” (Invited). In Proceedings of *CoNLL’00: Computational Natural Language Learning*.
- [82] D. Roth, D. Zelenko, “Coherent Concepts, Robust Learning” (Invited). In J. Pavelka, G. Tel, M. Bartosek (Eds.), *SOFSEM’99: Theory and Practice of Informatics*, Springer-Verlag Lecture Notes in Computer Science (LNCS) LNCS 1725, pp. 260–272.
- [83] D. Roth, “Learning and Reasoning with Connectionist Representations”, A contribution to “Connectionist Symbol Processing: Dead or Alive”, A. Jagota (Eds.), *Neural Computing Surveys*, 2, 1999, pp. 1–40.
- [84] D. Roth, “Learning to perform knowledge intensive inferences” (Invited Abstract). In I. Privara and P. Ruzicka (Eds.), *MFCS’97: Mathematical Foundations of Computer Science, 1997*, Springer-Verlag Lecture Notes in Computer Science (LNCS) 1295, pp. 108.
- [85] D. Roth, “Learning in Order to Reason: The Approach” (Invited). In K. G. Jeffery and J. Kral and M. Bartosek (Eds.), *SOFSEM’96: Theory and Practice of Informatics*, Springer-Verlag Lecture Notes in Computer Science (LNCS) 1175, pp. 112–124.
- [86] D. Roth, “Learning in Order to Reason” (Invited). *AAAI Symposium on Learning Complex Behaviors in Adaptive Intelligent Systems, Fall 1996*.

REFEREED CONFERENCE PROCEEDINGS

- [87] Yahan Yang, Elinor Sulem, Insup Lee and Dan Roth, “Bootstrapping Small & High Performance Language Models with Unmasking-Removal Training Policy”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing, 2023*
- [88] Haoyu Wang, Hongming Zhang, Yueguan Wang, Yuqian Deng, Muhao Chen, and Dan Roth, “Are All Steps Equally Important? Benchmarking Essentiality Detection in Event Processes”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing, 2023*
- [89] Karthikeyan K, Yogarshi Vyas, Jie Ma, Giovanni Paolini, Neha John, Shuai Wang, Yassine Benajiba, Vittorio Castelli, Dan Roth, and Miguel Ballesteros, “Taxonomy Expansion for Named Entity Recognition”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing, 2023*
- [90] Sharon Levy, Neha John, Ling Liu, Yogarshi Vyas, Jie Ma, Yoshinari Fujinuma, Miguel Ballesteros, Vittorio Castelli, and Dan Roth, “Comparing Biases and the Impact of Multilingual Training across Multiple Languages”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing, 2023*
- [91] Nishanth Nakshatri, Siyi Liu, Sihao Chen, Dan Roth, Dan Goldwasser, and Daniel Hopkins, “Using LLM for Improving Key Event Discovery: Temporal-Guided News Stream Clustering with Event Summaries”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing, Finding Track, 2023*

- [92] Yahan Yang, Elicor Sulem, Insup Lee, and Dan Roth, “Penn & BGU BabyBERTa+ for Strict-Small BabyLM Challenge”, *CoNLL’21, Proc. of the Annual Conference on Computational Natural Language Learning*, 2021.
- [93] Kaifu Wang, Efthymia Tsamoura, and Dan Roth, “On Learning Latent Models with Multi-Instance Weak Supervision”, *NeurIPS, The 2023 Conference on Advances in Neural Information Processing Systems*. MIT Press, Dec. 2023.
- [94] Yangruibo Ding, Zijian Wang, Wasi Uddin Ahmad, Hantian Ding, Ming Tan, Nihal Jain, Murali Krishna Ramanathan, Ramesh Nallapati, Parminder Bhatia, Dan Roth, and Bing Xiang, “CrossCodeEval: A Diverse and Multilingual Benchmark for Cross-File Code Completion”, *NeurIPS, The 2023 Conference on Advances in Neural Information Processing Systems*. MIT Press, Dec. 2023.
- [95] Kaifu Wang, Hangfeng He, Tin D. Nguyen, Piyush Kumar, and Dan Roth, “On Regularization and Inference with Label Constraints”, *ICML, Proc. of the International Conference on Machine Learning*, 2023.
- [96] Hritik Bansal, Karthik Gopalakrishnan, Saket Dingliwal, Sravan Bodapati, Katrin Kirchhoff and Dan Roth, “Rethinking the Role of Scale for In-Context Learning: An Interpretability-based Case Study at 66 Billion Scale”, *ACL, The Annual Meeting of the Association for Computational Linguistics*, 2023.
- [97] Tyler Chang, Kishaloy Halder, Neha Anna John, Yogarshi Vyas, Yassine Benajiba, Miguel Ballesteros and Dan Roth, “Characterizing and Measuring Linguistic Dataset Drift”, *ACL, The Annual Meeting of the Association for Computational Linguistics*, 2023.
- [98] Yu Feng, Ben Zhou, Haoyu Wang, Helen Jin and Dan Roth, “Generic Temporal Reasoning with Differential Analysis and Explanation”, *ACL, The Annual Meeting of the Association for Computational Linguistics*, 2023.
- [99] Alexander Hanbo Li, Mingyue Shang, Evangelia Spiliopoulou, Jie Ma, Patrick Ng, Zhiguo Wang, Bonan Min, William Yang Wang, Kathleen McKeown, Vittorio Castelli, Dan Roth and Bing Xiang, “Few-Shot Data-to-Text Generation via Unified Representation and Multi-Source Learning”, *ACL, The Annual Meeting of the Association for Computational Linguistics*, 2023.
- [100] Shiqi Wang, Zheng Li, Haifeng Qian, Chenghao Yang, Zijian Wang, Mingyue Shang, Varun Kumar, Samson Tan, Baishakhi Ray, Parminder Bhatia, Ramesh Nallapati, Murali Krishna Ramanathan, Dan Roth and Bing Xiang, “ReCode: Robustness Evaluation of Code Generation Models”, *ACL, The Annual Meeting of the Association for Computational Linguistics*, 2023.
- [101] Yahan Yang, Soham Dan, Dan Roth and Insup Lee, “In and Out-of-Domain Text Adversarial Robustness via Label Smoothing”, Short Paper, *ACL, The Annual Meeting of the Association for Computational Linguistics*, 2023.
- [102] Sihao Chen, Senaka Buthpitiya, Alex Fabrikant, Dan Roth and Tal Schuster, “PropSegmEnt: A Large-Scale Corpus for Proposition-Level Segmentation and Entailment Recognition”, *ACL, The Annual Meeting of the Association for Computational Linguistics*, Finding Track, 2023.

- [103] Xingyu Fu, Sheng Zhang, Gukyeong Kwon, Pramuditha Perera, Henghui Zhu, Yuhao Zhang, Alexander Hanbo Li, William Yang Wang, Zhiguo Wang, Vittorio Castelli, Patrick Ng, Dan Roth and Bing Xiang, “Generate then Select: Open-ended Visual Question Answering Guided by World Knowledge”, *ACL, The Annual Meeting of the Association for Computational Linguistics*, Finding Track, 2023.
- [104] Rujun Han, Peng Qi, Yuhao Zhang, Lan Liu, Juliette Burger, William Yang Wang, ziheng huang, Bing Xiang and Dan Roth, “RobustQA: Benchmarking the Robustness of Domain Adaptation for Open-Domain Question Answering”, *ACL, The Annual Meeting of the Association for Computational Linguistics*, Finding Track, 2023.
- [105] Danilo Neves, Ribeiro, Shen Wang, Xiaofei Ma, Henghui Zhu, Rui Dong;, Deguang Kong, Juliette Burger, Anjelica Ramos, ziheng huang, William Yang Wang, George Karypis, Bing Xiang, Dan Roth, “STREET: A Multi-Task Structured Reasoning and Explanation Benchmark”, *ICLR, The International Conference on Learning Representations*, 2023.
- [106] Ben Athiwaratkun; Sanjay Krishna Gouda; Zijian Wang; Xiaopeng Li; Yuchen Tian; Ming Tan; Wasi Uddin Ahmad; Shiqi Wang; Qing Sun; Mingyue Shang; Sujun Kumar Gonugondla; Hantian Ding; Varun Kumar; Nathan Fulton; Arash Farahani; Siddhartha Jain; Robert Giaquinto; Haifeng Qian; Murali Krishna Ramanathan; Ramesh Nallapati; Baishakhi Ray; Parminder Bhatia; Sudipta Sengupta; Dan Roth; Bing Xiang, “Multi-lingual Evaluation of Code Generation Models”, *ICLR, The International Conference on Learning Representations*, 2023.
- [107] Daniel Deutsch and Dan Roth, “Incorporating Question Answering-Based Signals into Abstractive Summarization via Salient Span Selection”, *EACL’23, The European Conference on Computational Linguistics*, May 2023.
- [108] Xiaodong Yu, Wenpeng Yin, Nitish Gupta and Dan Roth, “Event Linking: Grounding Event Mentions to Wikipedia”, *EACL’23, The European Conference on Computational Linguistics*, May 2023.
- [109] Haoyu Wang, Hongming Zhang, Yuqian Deng, Jacob Gardner, Dan Roth and Muhao Chen, “Extracting or Guessing? Improving Faithfulness of Event Temporal Relation Extraction”, *EACL’23, The European Conference on Computational Linguistics*, May 2023.
- [110] Hongming Zhang, Yintong Huo, Yanai Elazar, Yangqiu Song, Yoav Goldberg and Dan Roth, “CIKQA: Learning Commonsense Inference with a Unified Knowledge-in-the-loop QA Paradigm”, *EACL’23, The European Conference on Computational Linguistics*, Findings Track, May 2023.
- [111] Rotem Dror, Haoyu Wang and Dan Roth, “Zero-Shot On-the-Fly Event Schema Induction”, *EACL’23, The European Conference on Computational Linguistics*, Findings Track, May 2023.
- [112] Ben Zhou, Kyle Richardson, Xiaodong Yu, and Dan Roth, “Learning to Decompose: Hypothetical Question Decomposition Based on Comparable Texts”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2022

- [113] Daniel Deutsch, Rotem Dror, and Dan Roth, “Learning to Decompose: Hypothetical Question Decomposition Based on Comparable On the Limitations of Reference-Free Evaluations of Generated Text”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2022
- [114] William Bruno and Dan Roth, “LawngNLI: A Long-Premise Benchmark for In-Domain Generalization from Short to Long Contexts and for Implication-Based Retrieval”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing, Finding Track*, 2022
- [115] Soham Dan, Osbert Bastani, and Dan Roth, “Understanding Robust Generalization in Learning Regular Languages”, *ICML, Proc. of the International Conference on Machine Learning*, 2022.
- [116] Jiayao ZHANG, Hongming Zhang, Weijie Su, and Dan Roth, “Causal Inference Principles for Reasoning about Commonsense Causality”, *ICML, Proc. of the International Conference on Machine Learning*, 2022.
- [117] Uri Alon, Frank F. Xu, Junxian He, Sudipta Sengupta, Dan Roth, and Graham Neubig, “CNeuro-Symbolic Language Modeling with Automaton-augmented Retrieval”, *ICML, Proc. of the International Conference on Machine Learning*, 2022.
- [118] Daniel Deutsch, Rotem Dror, and Dan Roth, “Re-Examining System-Level Correlations of Automatic Summarization Evaluation Metrics”, *NAACL’22, The North American Conference on Computational Linguistics* (2022)
- [119] Elicor Sulem, Jamaal Hay, and Dan Roth, “Yes, No or IDK: The Challenge of Unanswerable Yes/No Questions”, Short Paper, *NAACL’22, The North American Conference on Computational Linguistics* (2022)
- [120] Ritam Dutt, Kasturi Bhattacharjee, Rashmi Gangadharaiyah, Dan Roth, and Carolyn Rose, “PerKGQA: Question Answering over Personalized Knowledge Graphs”, *NAACL’22, The North American Conference on Computational Linguistics: Finding Track*,(2022)
- [121] Danilo Neves Ribeiro, Shen Wang, Xiaofei Ma, Henghui Zhu, Rui Dong, Xinchu Chen, Peng Xu, zhiheng huang, Andrew Arnold, and Dan Roth, “Entailment Tree Explanations via Iterative Retrieval-Generation Reasoner”, *NAACL’22, The North American Conference on Computational Linguistics: Finding Track*,(2022)
- [122] Sihao Chen, Siyi Liu, Xander Uyttendaele, Yi Zhang, William W. Bruno, and Dan Roth, “Design Challenges for a Multi-Perspective Search Engine”, *NAACL’22, The North American Conference on Computational Linguistics: Finding Track*,(2022)
- [123] Hantian Ding, Jinrui Yang, Yuqian Deng, Hongming Zhang, and Dan Roth, “Towards Open-Domain Topic Classification”, *NAACL, Proc. of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (Demo Track)*, 2022.
- [124] Xiaodong Yu, Wenpeng Yin and Dan Roth, “Pairwise Representation Learning for Event Coreference”, **SEM, The Joint Conference on Lexical and Computational Semantics*, 2022.

- [125] Qi Zheng, Xiaodong Yu, Haoyu Wang, Elicor Sulem, and Dan Roth, “Capturing the Content of a Document through Complex Event Identification”, **SEM, The Joint Conference on Lexical and Computational Semantics*, 2022.
- [126] Xingyu Fu, Ben Zhou, Ishaan Preetam Chandratreya, Carl Vondrick, and Dan Roth, “Theres a Time and Place for Reasoning Beyond the Image”, *ACL, The Annual Meeting of the Association for Computational Linguistics*, 2022.
- [127] Zheng Li, Zijian Wang, Ming Tan, Ramesh Nallapati, Parminder Bhatia, Andrew Arnold, Bing Xiang, and Dan Roth, “DQ-BART: Efficient Sequence-to-Sequence Model via Distillation and Quantization”, *ACL, The Annual Meeting of the Association for Computational Linguistics*, 2022.
- [128] Aaron Mueller, Jason Krone, Salvatore Romeo, Saab Mansour, Yi Zhang, Elman Mansimov, and Dan Roth, “Label Semantic Aware Pre-training for Goal-oriented Dialogue”, *ACL, The Annual Meeting of the Association for Computational Linguistics*, 2022.
- [129] Jie Ma, Miguel Ballesteros, Srikanth Doss, Rishita Anubhai, Sunil Mallya, Yaser Al-Onaizan, and Dan Roth, “Label Semantics for Few Shot Named Entity Recognition”, *ACL, The Annual Meeting of the Association for Computational Linguistics: Findings Track*, 2022.
- [130] Daniel Deutsch and Dan Roth, “Benchmarking Answer Verification Methods for Question Answering-Based Summarization Evaluation Metrics”, *ACL, The Annual Meeting of the Association for Computational Linguistics: Findings Track*, 2022.
- [131] Georgios Georgakis, Karl Schmeckpeper, Karan Wanchoo, Soham Dan, Eleni Miltsakaki, Dan Roth and Kostas Daniilidis , “Cross-modal Map Learning for Vision and Language Navigation”, *CVPR’22, IEEE Conference on Computer Vision and Pattern Recognition*, Jun. 2022.
- [132] Shuxiao Chen, Koby Crammer, Hangfeng He, Dan Roth, and Weijie Su, “Weighted Training for Cross-Task Learning”, *ICLR, The International Conference on Learning Representations*, 2022.
- [133] Nafise Sadat Moosavi, Andreas Rckl, Dan Roth, and Iryna Gurevych, “SciGen: A Dataset for Reasoning-Aware Text Generation from Scientific Tables”, *NeurIPS, The 2021 Conference on Advances in Neural Information Processing Systems*. MIT Press, Dec. 2021.
- [134] Haoyu Wang, Hongming Zhang, Muhao Chen and Dan Roth, “Learning Constraints and Descriptive Segmentation for Subevent Detection”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2021
- [135] Rujun Han, I-Hung Hsu, Jiao Sun, Julia Baylon, Qiang Ning, Dan Roth and Nanyun Peng, “ESTER: A Machine Reading Comprehension Dataset for Reasoning about Event Semantic Relations”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2021
- [136] Yanai Elazar, Hongming Zhang, Yoav Goldberg and Dan Roth, “Back to Square One: Bias Detection, Training and Commonsense Disentanglement in the Winograd Schema”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2021

- [137] Hangfeng He, Mingyuan Zhang, Qiang Ning and Dan Roth, “Foreseeing the Benefits of Incidental Supervision”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2021
- [138] Nitish Gupta, Sameer Singh, Matt Gardner and Dan Roth, “Paired Examples as Indirect Supervision in Latent Decision Models”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2021
- [139] Elicor Sulem, Jamaal Hay and Dan Roth, “Do We Know What We Dont Know? Studying Unanswerable Questions beyond SQuAD 2.0”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing: Findings of EMNLP*, 2021.
- [140] Soham Dan and Dan Roth, “On the Effects of Transformer Size on In- and Out-of-Domain Calibration”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing: Findings of EMNLP*, 2021.
- [141] Soham Dan, Xinran Han and Dan Roth, “Compositional Data and Task Augmentation for Instruction Following”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing: Findings of EMNLP*, 2021.
- [142] Soham Dan, Osbert Bastani and Dan Roth, “Few-Shot Novel Concept Learning for Semantic Parsing”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing: Findings of EMNLP*, 2021.
- [143] Philip Huebner, Elicor Sulem, Cynthia Fisher, and Dan Roth, “BabyBERTa: Learning More Grammar With Small-Scale Child-Directed Language”, *CoNLL’21, Proc. of the Annual Conference on Computational Natural Language Learning*, 2021.
- [144] Dan Deutsch and Dan Roth, “Understanding the Extent to which Content Quality Metrics Measure the Information Quality of Summaries”, *CoNLL’21, Proc. of the Annual Conference on Computational Natural Language Learning*, 2021.
- [145] Yi Zhang, Zachary Ives and Dan Roth, “What is Your Article Based On? Inferring Fine-Grained Provenance”, *ACL, The Annual Meeting of the Association for Computational Linguistics*, 2021.
- [146] Qing Lyu, Hongming Zhang, Elicor Sulem and Dan Roth, “Zero-shot Event Extraction via Transfer Learning: Challenges and Insights”, *ACL, The Annual Meeting of the Association for Computational Linguistics*, 2021.
- [147] Mingzhu Wu, Nafise Sadat Moosavi, Dan Roth and Iryna Gurevych, “Coreference Reasoning in Machine Reading Comprehension”, *ACL, The Annual Meeting of the Association for Computational Linguistics*, 2021.
- [148] Hongming Zhang, Haoyu Wang and Dan Roth, “Zero-shot Label-Aware Event Trigger and Argument Classification”, *ACL, The Annual Meeting of the Association for Computational Linguistics: Findings of ACL*, 2021.

- [149] Ruohao Guo and Dan Roth, “Named Entity Recognition in Low-resource Languages via Constrained Labeled Data Generation”, *ACL, The Annual Meeting of the Association for Computational Linguistics: Findings of ACL*, 2021.
- [150] Ben Zhou, Kyle Richardson, Qiang Ning, Tushar Khot, Ashish Sabharwal and Dan Roth, “Temporal Reasoning on Implicit Events from Distant Supervision”, *NAACL’21, The North American Conference on Computational Linguistics* (2021)
- [151] Siyi Liu, Sihao Chen, Xander Uyttendaele and Dan Roth, “MultiOpEd: A Corpus of Multi-Perspective News Editorials”, *NAACL’21, The North American Conference on Computational Linguistics* (2021)
- [152] Soham Dan, Michael Zhou and Dan Roth, “Generalization in Instruction Following Systems” *NAACL’21, The North American Conference on Computational Linguistics* (2021)
- [153] Sihao Chen, Fan Zhang, Kazuo Sone and Dan Roth, “Improving Faithfulness in Abstractive Summarization with Contrast Candidate Generation and Selection”, *NAACL’21, The North American Conference on Computational Linguistics* (2021)
- [154] Yi Zhang, Sujay Kumar Jauhar, Julia Kiseleva, Ryen White and Dan Roth, “Learning to Decompose and Organize Complex Tasks”, *NAACL’21, The North American Conference on Computational Linguistics* (2021)
- [155] Haoyang Wen, Yanru Qu, Heng Ji, Qiang Ning, Jiawei Han, Avi Sil, Hanghang Tong and Dan Roth, “Event Time Extraction and Propagation via Graph Attention Networks”, *NAACL’21, The North American Conference on Computational Linguistics* (2021)
- [156] Haoyang Wen, Ying Lin, Tuan Lai, Xiaoman Pan, Sha Li, Xudong Lin, Ben Zhou, Manling Li, Haoyu Wang, Hongming Zhang, Xiaodong Yu, Alexander Dong, Zhenhailong Wang, Yi Fung, Piyush Mishra, Qing Lyu, Dac Surs, Brian Chen, Susan Windisch Brown, Martha Palmer, Chris Callison-Burch, Carl Vondrick, Jiawei Han, Dan Roth, Shih-Fu Chang and Heng Ji, “RESIN: A Dockerized Schema-Guided Cross-document Cross-lingual Cross-media Information Extraction and Event Tracking System”, *NAACL’21, The North American Conference on Computational Linguistics (Demo Track)* (2021)
- [157] Fangyu Liu, Muhao Chen, Dan Roth, and Nigel Collier, “Visual Pivoting for (Unsupervised) Entity Alignment”, *AAAI, The 35th Conference on Artificial Intelligence*, Feb. 2021.
- [158] Muhao Chen, Weijia Shi, Ben Zhou, and Dan Roth, “Cross-lingual Entity Alignment with Incidental Supervision”, *EACL’21, The European Conference on Computational Linguistics*, April 2021.
- [159] Alla Rozovskaya and Dan Roth, “How Good (really) are Grammatical Error Correction Systems?”, *EACL’21, The European Conference on Computational Linguistics*, April 2021.
- [160] Ansel MacLaughlin, Tao Chen, Burcu Karagol Ayan, and Dan Roth, “Context-Based Quotation Recommendation”, *ICWSM, The 15th International AAAI Conference on Web and Social Media*, 2021

- [161] Kaifu Wang, Qiang Ning, and Dan Roth, “Learnability with Indirect Supervision Signals”, *NeurIPS, The 2020 Conference on Advances in Neural Information Processing Systems*. MIT Press, Dec. 2020.
- [162] Xingyu Fu, Weijia Shi, Xiaodong Yu, Zian Zhao and Dan Roth, “Design Challenges in Low-resource Cross-lingual Entity Linking”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2020
- [163] Qiang Ning, Hao Wu, Rujun Han, Nanyun Peng, Matt Gardner and Dan Roth, “TORQUE: A Reading Comprehension Dataset of Temporal Ordering Questions” , *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2020.
- [164] Haoyu Wang, Muhao Chen, Hongming Zhang and Dan Roth, “Joint Constrained Learning for Event-Event Relation Extraction”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2020.
- [165] Hongming Zhang, Muhao Chen, Haoyu Wang, Yangqiu Song and Dan Roth, “Analogous Process Structure Induction for Sub-event Sequence Prediction”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2020.
- [166] Annie Louis, Filip Radlinski and Dan Roth, ““Id rather just go to bed”: Understanding Indirect Answers”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2020.
- [167] Zihan Wang, Karthikeyan K, Stephen Mayhew and Dan Roth, “Extending Multilingual BERT to Low-Resource Languages”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing: Findings of EMNLP*, 2020.
- [168] Krunal Shah, Nitish Gupta and Dan Roth, “What do we expect from Multiple-choice QA Systems?” *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing: Findings of EMNLP*, 2020.
- [169] Xikun Zhang, Deepak Ramachandran, Ian Tenney, Yanai Elazar and Dan Roth, “Do Language Embeddings capture Scales?”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing: Findings of EMNLP*, 2020.
- [170] Zi Lin, Jeremiah Liu, Zi Yang, Nan Hua and Dan Roth, “Pruning Redundant Mappings in Transformer Models via Spectral-Normalized Identity Prior”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing: Findings of EMNLP*, 2020.
- [171] Ben Zhou, Qiang Ning, Daniel Khashabi, and Dan Roth, “Temporal Common Sense Acquisition with Minimal Supervision”, *ACL, The Annual Meeting of the Association for Computational Linguistics*, 2020.
- [172] Hangfeng He, Qiang Ning, and Dan Roth, “Question-Answer Driven Sentence Encoding”, *ACL, The Annual Meeting of the Association for Computational Linguistics*, 2020.
- [173] Erfan Sadeqi Azer, Daniel Khashabi, Ashish Sabharwal, and Dan Roth, “Not All Claims are Created Equal: Choosing the Right Statistical Approach to Assess Hypotheses”, *ACL, The Annual Meeting of the Association for Computational Linguistics*, 2020.

- [174] Yi Zhang, Zachary G. Ives, and Dan Roth, “Who said it, and Why?” Provenance for Natural Language Claims”, *ACL, The Annual Meeting of the Association for Computational Linguistics*, 2020.
- [175] Hongming Zhang, Daniel Khashabi, Yangqiu Song, and Dan Roth, “TransOMCS: From Linguistic Graphs to Commonsense Knowledge”, *IJCAI’20, The 29th International Joint Conference on Artificial Intelligence* (2020)
- [176] Karthikeyan K, Zihan Wang, Stephen Mayhew, and Dan Roth, “Cross-Lingual Ability of Multilingual BERT: An Empirical Study”, *ICLR, The International Conference on Learning Representations*, 2020.
- [177] Nitish Gupta, Kevin Lin, Dan Roth, Sameer Singh, and Matt Gardner, “Neural Module Networks for Reasoning over Text”, *ICLR, The International Conference on Learning Representations*, 2020.
- [178] Muhao Chen, Hongming Zhang, Haoyu Wang and Dan Roth, “What Are You Trying to Do? Semantic Typing of Event Processes”, *CoNLL’20, Proc. of the Annual Conference on Computational Natural Language Learning*, 2020.
- [179] Disha Jindal, Daniel Deutsch, and Dan Roth, “Is “Killed” More Significant than “Fled”? A Contextual Model for Salient Event Detection”, *COLING-2020, The 30th International Conference on Computational Linguistics*.
- [180] Ayal Klein, Jonathan Mamou, Valentina Pyatkin, Daniela Brook Weiss, Hangfeng He, Dan Roth, Luke Zettlemoyer, and Ido Dagan “QANom: Question-Answer driven SRL for Nominalizations”, *COLING-2020, The 30th International Conference on Computational Linguistics*.
- [181] Soham Dan, Hangfeng He, and Dan Roth, “Understanding Spatial Relations through Multiple Modalities”, *LREC, Proc. of the 12th International Conference on Language Resources and Evaluation*, 2020.
- [182] Soham Dan, Parisa Kordjamshidi, Archana Bhatia, Julia Bonn, Jon Cai, Martha Palmer, and Dan Roth, “From Spatial Relations to Spatial Configurations”, *LREC, Proc. of the 12th International Conference on Language Resources and Evaluation*, 2020.
- [183] Stephen Mayhew, Nitish Gupta, and Dan Roth, “Robust Named Entity Recognition with Truecasing Pretraining”, *AAAI, The 34th Conference on Artificial Intelligence*, Feb. 2020.
- [184] Stephen Mayhew, Tatiana Tsygankova, and Dan Roth, “ner and pos when nothing is capitalized”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2019.
- [185] Wenpeng Yin, Jamaal Hay, and Dan Roth, “Benchmarking Zero-shot Text Classification: Datasets, Evaluation, and Entailment Approach”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2019.
- [186] Daniel Deutsch and Dan Roth, “Summary Cloze: A New Task for Content Selection in Topic-Focused Summarization”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2019.

- [187] Ben Zhou, Daniel Khashabi, Qiang Ning, and Dan Roth, ““Going on a vacation” takes longer than “Going for a walk”: A Study of Temporal Commonsense Understanding”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2019.
- [188] Qiang Ning, Sanjay Subramanian, and Dan Roth, “An Improved Neural Baseline for Temporal Relation Extraction”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2019.
- [189] Haoruo Peng, Qiang Ning, and Dan Roth, “KnowSemLM: A Knowledge Infused Semantic Language Model”, *CoNLL’19, Proc. of the Annual Conference on Computational Natural Language Learning*, 2019.
- [190] Daniel Deutsch, Shyam Upadhyay and Dan Roth, “A General-Purpose Algorithm for Constrained Sequential Inference”, *CoNLL’19, Proc. of the Annual Conference on Computational Natural Language Learning*, 2019.
- [191] Hai Wang, Dian Yu, Kai Sun, Jianshu Chen, Dong Yu, David McAllester, and Dan Roth, “Evidence Sentence Extraction for Machine Reading Comprehension”, *CoNLL’19, Proc. of the Annual Conference on Computational Natural Language Learning*, 2019.
- [192] Stephen Mayhew, Snigdha Chaturvedi, Chen-Tse Tsai, and Dan Roth, “Named Entity Recognition with Partially Annotated Training Data”, *CoNLL’19, Proc. of the Annual Conference on Computational Natural Language Learning*, 2019.
- [193] Yanai Elazar, Abhijit Mahabal, Deepak Ramachandran, Tania Bedrax-Weiss and Dan Roth, “How Large Are Lions? Inducing Distributions over Quantitative Attributes”, *ACL, The Annual Meeting of the Association for Computational Linguistics*, 2019.
- [194] Yi Zhang, Zach Ives and Dan Roth, “Evidence-based Trustworthiness”, *ACL, The Annual Meeting of the Association for Computational Linguistics*, 2019.
- [195] Sihao Chen, Daniel Khashabi, Chris Callison-Burch, and Dan Roth, “PerspectroScope: A Window to the World of Diverse Perspectives”, *ACL, The Annual Meeting of the Association for Computational Linguistics (Demo Track)*, 2019.
- [196] Sihao Chen and Daniel Khashabi and Wenpeng Yin and Chris Callison-Burch and Dan Roth, “Seeing Things from a Different Angle: Discovering Diverse Perspectives about Claims”, *NAACL’19, The North American Conference on Computational Linguistics (2019)*
- [197] Qiang Ning and Hangfeng He and Chuchu Fan and Dan Roth, “Partial or Complete, That’s The Question”, *NAACL’19, The North American Conference on Computational Linguistics (2019)*
- [198] Abhijit Mahabal and Jason Baldridge and Burcu Karagol Ayan and Vincent Perot and Dan Roth, “Text Classification with Few Examples using Controlled Generalization”, *NAACL’19, The North American Conference on Computational Linguistics (2019)*
- [199] Jana Doppa and Dan Roth, “Randomized Greedy Search for Structured Prediction: Amortized Inference and Learning”, *IJCAI’19, The 28th International Joint Conference on Artificial Intelligence (2019)*

- [200] Jana Doppa and Dan Roth, “Learning and Inference for Structured Prediction: A Unifying Perspective”, *IJCAI’19, The 28th International Joint Conference on Artificial Intelligence* (2019)
- [201] Sanjay Subramanian and Dan Roth, “Improving Generalization in Coreference Resolution via Adversarial Training”, **SEM, The Joint Conference on Lexical and Computational Semantics* (2019)
- [202] Ziheng Zeng and Snigdha Chaturvedi and Suma Bhat and Dan Roth, “DiAd: Domain Adaptation for Learning at Scale”, *LAK, the 9th International Learning Analytics and Knowledge Conference* (2019)
- [203] Ben Zhou and Daniel Khashabi and Chen-Tse Tsai and Dan Roth, “Zero-Shot Open Entity Typing as Type-Compatible Grounding” *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2018.
- [204] Shyam Upadhyay and Jordan Kodner and Dan Roth, “Bootstrapping Transliteration with Constrained Discovery for Low-Resource Languages” *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2018.
- [205] Wenpeng Yin and Dan Roth, TwoWingOS: “A Two-Wing Optimization Strategy for Evidential Claim Verification” *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2018.
- [206] Xiaodong Yu and Stephen Mayhew and Mark Sammons and Dan Roth, “On the Strength of Character Language Models for Multilingual Named Entity Recognition” *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2018.
- [207] Shyam Upadhyay and Nitish Gupta and Dan Roth, “Joint Multilingual Supervision for Cross-Lingual Entity Linking” *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2018. Mri
- [208] Qiang Ning and Ben Zhou and Zhili Feng and Haoruo Peng and Dan Roth, CogCompTime: “A Tool for Understanding Time in Natural Language” *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing (Demo Track)*, 2018.
- [209] M. Sachan and KA. Dubey and TM. Mitchell and D. Roth, EP. Xing “Learning Pipelines with Limited Data and Domain Knowledge: A Study in Parsing Physics Problems”, *NIPS, The 2018 Conference on Advances in Neural Information Processing Systems*. MIT Press, Dec. 2018.
- [210] Q. Ning, H. Wu, and D. Roth, “A Multi-Axis Annotation Scheme for Event Temporal Relations”, *ACL, The Annual Meeting of the Association for Computational Linguistics*, 2018.
- [211] Q. Ning, Z. Feng, H. Wu, and D. Roth, “Joint Reasoning for Temporal and Causal Relations”, *ACL, The Annual Meeting of the Association for Computational Linguistics*, 2018.
- [212] D. Deutsch, J. Hewitt, and D. Roth, “A Distributional and Orthographic Aggregation Model for English Derivational Morphology”, *ACL, The Annual Meeting of the Association for Computational Linguistics*, 2018.

- [213] W. Yin, H. Schtze, and D. Roth, “End-Task Oriented Textual Entailment via Deep Explorations of Inter-Sentence Interactions”, *ACL, The Annual Meeting of the Association for Computational Linguistics*, 2018.
- [214] S. Mayhew and D. Roth, “TALEN: Tool for Annotation of Low-resource ENTities”, *ACL, The Annual Meeting of the Association for Computational Linguistics (Demo Track)*, 2018.
- [215] D. Khashabi, S. Chaturvedi, M. Roth, S. Upadhyay and D. Roth, “Looking Beyond The Surface: A Challenge Set For Reading Comprehension Over Multiple Sentences”, *NAACL’18, The North American Conference on Computational Linguistics*, June 2018.
- [216] Y. Vyas, S. Upadhyay, M. Carpuat and D. Roth, “Robust Cross-Lingual Hypernymy Detection Using Dependency Context”, *NAACL’18, The North American Conference on Computational Linguistics*, June 2018.
- [217] Q. Ning and H. Wu and H. Peng and D. Roth, “Improving Temporal Relation Extraction with a Globally Acquired Statistical Resource”, *NAACL’18, The North American Conference on Computational Linguistics*, June 2018.
- [218] S. Chaturvedi, S. Srivastava and D. Roth, “Where Have I Heard This Story Before?: Identifying Narrative Similarity In Movie Summaries”, *NAACL’18, The North American Conference on Computational Linguistics*, June 2018.
- [219] Q. Ning, Z. Yu, C. Fan and D. Roth, “Exploiting Partially Annotated Data for Temporal Relation Extraction”, **SEM, The Joint Conference on Lexical and Computational Semantics*, 2018.
- [220] W. Yin and D. Roth, “Term Definitions Help Hypernymy Detection”, **SEM, The Joint Conference on Lexical and Computational Semantics*, 2018.
- [221] A. Mahabal, S. Mittak, and D. Roth, “Robust Handling of Polysemy via Sparse Representations”, **SEM, The Joint Conference on Lexical and Computational Semantics*, 2018.
- [222] Daniel Khashabi, Mark Sammons, Ben Zhou, Tom Redman, Christos Christodoulopoulos, Vivek Srikumar, Nicholas Rizzolo, Lev Ratinov, Guanheng Luo, Quang Do, Chen-Tse Tsai, Subhro Roy, Stephen Mayhew, Zhili Feng, John Wieting, Xiaodong Yu, Yangqiu Song, Shashank Gupta, Shyam Upadhyay, Naveen Arivazhagan, Qiang Ning, Shaoshi Ling, and Dan Roth, “CogCompNLP: Your Swiss Army Knife for NLP”, *LREC, Proc. of the 11th International Conference on Language Resources and Evaluation*, 2018.
- [223] D. Khashabi, T. Khot, A. Sabharwal, and D. Roth, “Question Answering as Global Reasoning over Semantic Abstractions”, *AAAI, The 32nd Conference on Artificial Intelligence*, Feb. 2018.
- [224] C-T. Tsai and D. Roth, “Learning Better Name Translation for Cross-Lingual Wikification”, *AAAI, The 32nd Conference on Artificial Intelligence*, Feb. 2018.
- [225] P. Kordjamshidi, K. Kersting, and D. Roth, “Systems AI: A Declarative Learning Based Programming Perspective”, *IJCAI’18, The 27th International Joint Conference on Artificial Intelligence*, 2018.

- [226] M. Das, P. Odom, R. Islam, J. Doppa, S. Natarajan, and D. Roth, "Preference- Guided Planning: An Active Elicitation Approach", *AAMAS, The International Conference on Autonomous Agents and Multi-agent Systems*, July 2018.
- [227] N. Gupta, S. Singh and D. Roth, "Entity Linking via Joint Encoding of Types, Descriptions, and Context", *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2017.
- [228] S. Mayhew and C-T. Tsai and D. Roth, "Cheap Translation for Cross-Lingual Named Entity Recognition", *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2017.
- [229] S. Chaturvedi and H. Peng and D. Roth, "Story Comprehension for Predicting What Happens Next", *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2017.
- [230] Q. Ning and Z. Feng and D. Roth, "A Structured Learning Approach to Temporal Relation Extraction", *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2017.
- [231] H. Peng, S. Chaturvedi and D. Roth, "A Joint Model for Semantic Sequences: Frames, Entities, Sentiments", *CoNLL'17, Proc. of the Annual Conference on Computational Natural Language Learning*, 2017.
- [232] D. Khashabi, T. Khot, A. Sabharwal, and D. Roth, "Learning What is Essential in Questions", *CoNLL'17, Proc. of the Annual Conference on Computational Natural Language Learning*, 2017.
- [233] D. Roth, "Incidental Supervision: Moving beyond Supervised Learning", *AAAI, The 31st Conference on Artificial Intelligence*, Feb. 2017.
- [234] S. Roy and D. Roth, "Unit Dependency Graph and its Application to Arithmetic Word Problem Solving", *AAAI, The 31st Conference on Artificial Intelligence*, Feb. 2017.
- [235] P. Kordjamshidi, and D. Khashabi, and C. Christodoulopoulos, and B. Mangipudi, and S. Singh, and D. Roth, "Better call Saul: Flexible Programming for Learning and Inference in NLP", *COLING-2016, The 26th International Conference on Computational Linguistics*.
- [236] S. Upadhyay, N. Gupta, C. Christodoulopoulos, and D. Roth, "Revisiting the Evaluation for Cross Document Event Coreference", *COLING-2016, The 26th International Conference on Computational Linguistics*.
- [237] S. Roy, S. Upadhyay and D. Roth, "Equation Parsing : Mapping Sentences to Grounded Equations", *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2016.
- [238] H. Peng, Y. Song, and D. Roth, "Event Detection and Co-reference with Minimal Supervision", *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2016.

- [239] H. Peng and D. Roth, “Two Discourse Driven Language Models for Semantics”, *ACL, Proc. of the Annual Meeting of the Association for Computational Linguistics*, 2016.
- [240] A. Rozovskaya and D. Roth, “Grammatical Error Correction: Machine Translation and Classifiers”, *ACL, Proc. of the Annual Meeting of the Association for Computational Linguistics*, 2016.
- [241] S. Upadhyay, M. Faruqui, C. Dyer and D. Roth, “Cross-lingual Models of Word Embeddings: An Empirical Comparison”, *ACL, Proc. of the Annual Meeting of the Association for Computational Linguistics*, 2016.
- [242] S. Ling, Y. Song and D. Roth, “Word Embeddings with Limited Memory”, Short Paper, *ACL, Proc. of the Annual Meeting of the Association for Computational Linguistics*, 2016.
- [243] C-T. Tsai, S. Mayhew and D. Roth, “Cross-Lingual Named Entity Recognition via Wikification”, *CoNLL’16, Proc. of the Annual Conference on Computational Natural Language Learning*, 2016.
- [244] D. Khashabi, T. Khot, A. Sabharwal, P. Clark, O. Etzioni and D. Roth, “Question Answering via Integer Programming over Semi-Structured Knowledge”, *IJCAI’16, The 25rd International Joint Conference on Artificial Intelligence*, 2016.
- [245] Y. Song, S. Upadhyay, H. Peng and D. Roth, “Cross-lingual Dataless Classification for Many Languages”, *IJCAI’16, The 25rd International Joint Conference on Artificial Intelligence*, 2016.
- [246] C-T Tsai and D. Roth, “Cross-lingual Wikification Using Multilingual Embeddings”, *NAACL’16, The North American Conference on Computational Linguistics*, June 2016.
- [247] N. Arivazhagan, C. Christodoulopoulos and D. Roth, “Labeling the Semantic Roles of Commas”, *AAAI, The 30th Conference on Artificial Intelligence*, Feb. 2016.
- [248] P. Garg, D. Neider, P. Madhusudan, and D. Roth, “Learning Invariants using Decision Trees and Implication Counterexamples”, *Annual Symposium on Principles of Programming Languages (POPL)*, Jan. 2016.
- [249] Y. Li, S. Tan, H. Sun, J. Han, D. Roth, and X. Yan “Entity disambiguation with linkless knowledge bases”, *WWW’16, The 25th International World Wide Web Conference*, 2016.
- [250] S. Roy and D. Roth, “Solving General Arithmetic Word Problems”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2015.
- [251] W. Lu and D. Roth, “Joint Mention Extraction and Classification with Mention Hypergraphs”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2015.
- [252] C-P. Lee and D. Roth, “Distributed Box-Constrained Quadratic Optimization for Dual Linear SVM”, *ICML, Proc. of the International Conference on Machine Learning*, 2015.
- [253] P. Kordjamshidi, H. Wu and D. Roth, “Saul: Towards Declarative Learning Based Programming”, *IJCAI’15, The 24rd International Joint Conference on Artificial Intelligence*, 2015.

- [254] C. Wang, Y. Song, D. Roth, C. Wang, J. Han, H. Ji and M. Zhang “Constrained Information-Theoretic Tripartite Graph Clustering to Identify Semantically Similar Relations”, *IJCAI’15, The 24rd International Joint Conference on Artificial Intelligence*, 2015.
- [255] H. Peng, D. Khashabi and D. Roth, “Solving Hard Coreference Problems”, *NAACL’15, The North American Conference on Computational Linguistics*, June 2015.
- [256] Y. Song and D. Roth, “Unsupervised Sparse Vector Similarity Densification for Short Texts”, *NAACL’15, The North American Conference on Computational Linguistics*, June 2015.
- [257] K-W. Chang, S. Upadhyay, G. Kundu and D. Roth, “Structural Learning with Amortized Inference”, *AAAI, The 29th Conference on Artificial Intelligence*, Jan. 2015.
- [258] H. Peng, K-W. Chang, and D. Roth, “A Joint Framework for Coreference Resolution and Mention Head Detection”, *CoNLL’15, Proc. of the Annual Conference on Computational Natural Language Learning*, July 2015.
- [259] H. Zhuang, A. Parameswaran, D. Roth, and J. Han, “Debiasing Crowdsourced Batches”, *KDD’15, The 21st SIGKDD Conference on Knowledge Discovery and Data Mining*, Aug. 2015.
- [260] C. Wang, Y. Song, A. -Kishkyyz, D. Roth, M. Zhang, and J. Han, “Incorporating World Knowledge to Document Clustering via Heterogeneous Information Networks”, *KDD’15, The 21st SIGKDD Conference on Knowledge Discovery and Data Mining*, Aug. 2015.
- [261] Y. Song and D. Roth, “On Dataless Hierarchical Text Classification”, *AAAI, The 28th Conference on Artificial Intelligence*, Jul. 2014.
- [262] R. Samdani K.-W. Chang and D. Roth, “A Discriminative Latent Variable Model for Online Clustering”, *ICML, Proc. of the International Conference on Machine Learning*, 2014.
- [263] H. Wu, Z. Fei, A. Dai, M. Sammons and D. Roth, “ILLINOIS’CLOUD-NLP: Text Analytics Services in the Cloud”, *LREC, Proc. of the International Conference on Language Resources and Evaluation*, 2014.
- [264] A. Rozovskaya, D. Roth and V. Srikumar, “Correcting Grammatical Verb Errors”, *EACL’14, The European Conference on Computational Linguistics*, April 2014.
- [265] P. Jindal, C. Gunter and D. Roth, “Detecting Privacy-Sensitive Events in Medical Text”, *ACM-BCB, Proc. of the ACM Conference on Bioinformatics, Computational Biology and Biomedical Informatics*, Sep. 2014.
- [266] P. Jindal, D. Roth and C. Gunter, “Joint Inference for End-to-End Coreference Resolution for Clinical Notes”, *ACM-BCB, Proc. of the ACM Conference on Bioinformatics, Computational Biology and Biomedical Informatics*, Sep. 2014.
- [267] A. Rozovskaya, K.-W. Chang, M. Sammons, D. Roth and N. Habash, “The Illinois-Columbia System in the CoNLL-2014 Shared Task”, *Proc. of the Conference on Natural Language Learning*, Jun. 2014.

- [268] D. Goldwasser and D. Roth, “Leveraging Domain-Independent Information in Semantic Parsing”, *ACL, Proc. of the Annual Meeting of the Association for Computational Linguistics*, 2013.
- [269] G. Kundu, V. Srikumar and D. Roth, “Margin-based Decomposed Amortized Inference”, *ACL, Proc. of the Annual Meeting of the Association for Computational Linguistics*, 2013.
- [270] P. Jindal and D. Roth, “Using Soft Constraints in Joint Inference for Clinical Concept Recognition”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2013.
- [271] K.-W. Chang, R. Samdani and D. Roth, “A Constrained Latent Variable Model for Coreference Resolution”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2013.
- [272] A. Rozovskaya and D. Roth, “Joint Learning and Inference for Grammatical Error Correction”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2013.
- [273] X. Cheng and D. Roth, “Relational Inference for Wikification”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2013.
- [274] C. Tsai, G. Kundu and D. Roth, “Concept-Based Analysis of Scientific Literature”, *CIKM, The 22st ACM International Conference on Information and Knowledge Management*, 2013.
- [275] J. Pasternack and D. Roth, “Latent Credibility Analysis”, *WWW’13, The 22nd International World Wide Web Conference*, 2013.
- [276] P. Jindal and D. Roth, “End-to-End Coreference Resolution for Clinical Narratives”, *IJCAI’13, The 23rd International Joint Conference on Artificial Intelligence*, 2013.
- [277] K.-W. Chang, V. Srikumar and D. Roth, “Multi-core Structural SVM Training”, *ECML’13, The European Conference on Machine Learning* 2013.
- [278] A. Rozovskaya, K.-W. Chang, M. Sammons and D. Roth, “The University of Illinois System in the CoNLL-2013 Shared Task”, *CoNLL, Proc. of the Conference on Computational Natural Language Learning*, 2013.
- [279] Y. Li, C. Wang, F. Han, J. Han, D. Roth, and X. Yan:, “Mining evidence for named entity disambiguation”, *KDD’13, The 19th SIGKDD Conference on Knowledge Discovery and Data Mining*, 2013.
- [280] R. Samdani and D. Roth, “Efficient Decomposed Learning for Structured Prediction”, *ICML, Proc. of the International Conference on Machine Learning*, 2012.
- [281] R. Samdani, M. Chang and D. Roth, “Unified Expectation Maximization”, *NAACL’12, The North American Conference on Computational Linguistics*, June 2012.
- [282] W. Lu and D. Roth, “Automatic Event Extraction with Structured Preference Modeling”, *ACL, Proc. of the Annual Meeting of the Association for Computational Linguistics*, 2012.

- [283] L. Ratinov and D. Roth, “Learning-based Multi-Sieve Co-Reference Resolution with Knowledge”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2012.
- [284] V. Srikumar and G. Kundu and D. Roth, “On Amortizing Inference Cost for Structured Prediction”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2012.
- [285] Q. Do, W. Lu and D. Roth, “Joint Inference for Event Timeline Construction”, *EMNLP, Proc. of the Conference on Empirical Methods in Natural Language Processing*, 2012.
- [286] R. Zhao, Q. Do and D. Roth, “A Robust Shallow Temporal Reasoning System”, *NAACL, Proc. of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (Demo Track)*, 2012.
- [287] Y. Tu and D. Roth, “Sorting out the Most Confusing English Phrasal Verbs”, **SEM, First Joint Conference on Lexical and Computational Semantics*, 2012.
- [288] V. Vydiswaran, C. Zhai, D. Roth and P. Pirolli, “BiasTrust: Teaching biased users about controversial topics”, *CIKM, The 21st ACM International Conference on Information and Knowledge Management*, 2012.
- [289] Y. Lu, H. Wang, C. Zhai and D. Roth “Unsupervised Discovery of Opposing Opinion Networks From Forum Discussions”, *CIKM, The 21st ACM International Conference on Information and Knowledge Management*, 2012.
- [290] V. Vydiswaran, C. Zhai, D. Roth and P. Pirolli, “Unbiased Learning of Controversial Topics”, *ASIST, The 75th Annual Meeting of the American Society for Information Science and Technology*, 2012.
- [291] K.-W. Chang, B. Deka, W.-M. W. Hwu and D. Roth, “Efficient Pattern-Based Time Series Classification on GPU”, *ICDM’12, the 12th IEEE International Conference on Data Mining*, 2012.
- [292] J. Clarke, V. Srikumar, M. Sammons and D. Roth, “An NLP Curator (or: How I Learned to Stop Worrying and Love NLP Pipelines)”, *LREC, Proc. of the International Conference on Language Resources and Evaluation*, 2012.
- [293] P. Jindal and D. Roth, “Using Knowledge and Constraints to Find the Best Antecedent)”, *COLING-2012, The 24th International Conference on Computational Linguistics*, 2012.
- [294] K. Chang, R. Samdani, A. Rozovskaya, M. Sammons and D. Roth, “Illinois-Coref: The UI System in the CoNLL-2012 Shared Task”, *CoNLL, Proc. of the Conference on Computational Natural Language Learning*, 2012.
- [295] Q. Do, Y. Chan, and D. Roth, “Minimally Supervised Event Causality Extraction”, *EMNLP’11, The SIGDAT Conference on Empirical Methods in Natural Language Processing*, Aug. 2011.
- [296] V. Srikumar and D. Roth, “A Joint Model for Extended Semantic Role Labeling”, *EMNLP’11, The SIGDAT Conference on Empirical Methods in Natural Language Processing*, Aug. 2011.

- [297] K-W Chang and D. Roth, “Selective Block Minimization for Faster Convergence of Limited Memory Large-scale Linear Models”, *KDD’11, The 17th SIGKDD Conference on Knowledge Discovery and Data Mining*, Aug. 2011.
- [298] V.G.V. Vydiswaran, C. Zhai and D. Roth, “Content-driven Trust Propagation Framework”, *KDD’11, The 17th SIGKDD Conference on Knowledge Discovery and Data Mining*, Aug. 2011.
- [299] J. Pasternack and D. Roth, “Making Better Informed Trust Decisions with Generalized Fact-Finding”, *IJCAI’11, The 22nd International Joint Conference on Artificial Intelligence*, Jul. 2011.
- [300] D. Goldwasser and D. Roth, “Learning from Natural Instructions”, *IJCAI’11, The 22nd International Joint Conference on Artificial Intelligence*, Jul. 2011.
- [301] M. Connor, C. Fisher and D. Roth, “Online Latent Structure Training for Language Acquisition”, *IJCAI’11, The 22nd International Joint Conference on Artificial Intelligence*, Jul. 2011.
- [302] G. Kundu, D. Roth and R. Samdani, “Constrained Conditional Models for Information Fusion”, *International Conference on Information Fusion*, Jul. 2011
- [303] D. Wang, T. Abdelzaher, H. Ahmadi, J. Pasternack, D. Roth, M. Gupta, J. Han, O. Fatemieh, H. Le and C. Aggarwal, “On Bayesian Interpretation of Fact-finding in Information Networks”, *International Conference on Information Fusion*, Jul. 2011.
- [304] L. Ratinov, D. Roth, D. Downey and M. Anderson, “Local and Global Algorithms for Disambiguation to Wikipedia”, *ACL’11, the 45th International Conference of the Association of Computational Linguistics*, Jun. 2011.
- [305] Y. Chan and D. Roth, “Exploiting Syntactico-Semantic Structures for Relation Extraction”, *ACL’11, the 45th International Conference of the Association of Computational Linguistics*, Jun. 2011.
- [306] D. Goldwasser, R. Reichart, J. Clarke and D. Roth, “Confidence Driven Unsupervised Semantic Parsing”, *ACL’11, the 45th International Conference of the Association of Computational Linguistics*, Jun. 2011.
- [307] A. Rozovskaya and D. Roth, “Algorithm Selection and Model Adaptation for ESL Correction Tasks”, *ACL’11, the 45th International Conference of the Association of Computational Linguistics*, Jun. 2011.
- [308] G. Kundu and D. Roth, “Adapting Text instead of the Model: An Open Domain Approach”, *CoNLL’11, Proc. of the Annual Conference on Computational Natural Language Learning*, June 2011.
- [309] K-W. Chang, R. Samdani, A. Rozovskaya, N. Rizzolo, M. Sammons and D. Roth, “Inference Protocols for Co-reference Resolution”, *CoNLL’11, Proc. of the Annual Conference on Computational Natural Language Learning*, June 2011.

- [310] J. Pasternack and D. Roth, “Generalized Fact-Finding”, *WWW’11, The 20th International World Wide Web Conference*, Apr. 2011.
- [311] P. Jindal and D. Roth, “Learning from Negative Examples in Set-Expansion”, *ICDM’11, the 11th IEEE International Conference on Data Mining*, Dec. 2011.
- [312] H. Khac Le, J. Pasternack, H. Ahmadi, M. Gupta, Y. Sun, T. Abdelzaher, J. Han and D. Roth, “Apollo: Towards Factfinding in Participatory Sensing”, *International Conference on Information Processing in Sensor Networks*, Apr. 2011.
- [313] J. Pasternack and D. Roth, “Comprehensive Trust Metrics for Information Networks”, *Proc. of the Army Science Conference (ASC)*, Dec. 2010.
- [314] M-W. Chang, M. Connor and D. Roth, “The Necessity of Combining Adaptation Methods”, *EMNLP’10, The SIGDAT Conference on Empirical Methods in Natural Language Processing*, Oct. 2010.
- [315] A. Rozovskaya and D. Roth, “Generating Confusion Sets for Context-Sensitive Error Correction”, *EMNLP’10, The SIGDAT Conference on Empirical Methods in Natural Language Processing*, Oct. 2010.
- [316] Q. Do and D. Roth, “Constraints-based Taxonomic Relation Classification”, *EMNLP’10, The SIGDAT Conference on Empirical Methods in Natural Language Processing*, Oct. 2010.
- [317] G. Levine, J. DeJong, L. Wang, R. Samdani, S. Vembu, D. Roth, “Automatic Model Adaptation for Complex Structured Domains”, *ECML’10, The European Conference on Machine Learning*, Sept. 2010.
- [318] J. Pasternack and D. Roth, “Knowing What to Believe (when you already know something)”, *COLING-2010, The 23rd International Conference on Computational Linguistics*, Aug. 2010.
- [319] Y. Chan and D. Roth, “Exploiting Background Knowledge for Relation Extraction”, *COLING-2010, The 23rd International Conference on Computational Linguistics*, Aug. 2010.
- [320] Y. Tu and N. Johri and D. Roth and J. Hockenmaier, “Citation Author Topic Model in Expert Search”, *COLING-2010, The 23rd International Conference on Computational Linguistics*, Aug. 2010.
- [321] M. Sammons, V.G. Vydiswaran and D. Roth, “Ask not what Textual Entailment can do for You...” *ACL’10, the 44th International Conference of the Association of Computational Linguistics*, Jul. 2010.
- [322] M. Connor, Y. Gertner, C. Fisher and D. Roth, “Starting From Scratch in Semantic Role Labeling”, *ACL’10, the 44th International Conference of the Association of Computational Linguistics*, Jul. 2010.
- [323] J. Clarke, D. Goldwasser, M. Chang and D. Roth, “Driving Semantic Parsing from the World’s Response”, *CoNLL’10, The Annual Conference on Computational Natural Language Learning*, July 2010.

- [324] M. Chang, D. Goldwasser, D. Roth and V. Srikumar, “Structured Output Learning with Indirect Supervision”, *ICML’10, The International Machine Learning Conference*, June 2010.
- [325] M. Chang, V. Srikumar, D. Goldwasser and D. Roth, “Discriminative Learning over Constrained Latent Representations”, *NAACL’10, The North American Conference on Computational Linguistics*, June 2010.
- [326] D. Roth and A. Rozovskaya, “Training Paradigms for Correcting Errors in Grammar and Usage”, *NAACL’10, The North American Conference on Computational Linguistics*, June 2010.
- [327] N. Rizzolo and D. Roth, “Learning Based Java for Rapid Development of NLP Systems”, *LREC’10, The seventh international conference on Language Resources and Evaluation*, May 2010.
- [328] I. Titov, A. Klementiev, K. Small and D. Roth, “Unsupervised Aggregation for Classification Problems with Large Numbers of Categories”, *Proc. of the 13th International Conference on Artificial Intelligence and Statistics (AISTATS)*, May 2010.
- [329] D. Roth and Y. Tu, “Aspect Guided Text Categorization with Unobserved Labels”, *ICDM’09, the 9th IEEE International Conference on Data Mining*, Dec. 2009.
- [330] D. Roth and R. Samdani, “Learning Multi-Linear Representations”, *European Conference of Machine Learning*, September, 2009. Invited and appeared also in a special issue of the Machine Learning Journal, Volume 76, Issue 2 July 2009, pp. 195-209.
- [331] J. Pasternack and D. Roth, “Learning Better Transliterations”, *CIKM’09, The 18th ACM Conference on Information and Knowledge Management*, Nov. 2009.
- [332] D. Roth, M. Sammons and V.G. Vydiswaran, “A Framework for Entailed Relation Recognition” *ACL’09, the 43rd International Conference of the Association of Computational Linguistics*, Aug. 2009.
- [333] J. Eisenstein, J. Clarke, D. Goldwasser and D. Roth, “Reading to Learn: Constructing Features from Semantic Abstracts”, *EMNLP’09, The SIGDAT Conference on Empirical Methods in Natural Language*, Aug. 2009.
- [334] A. Klementiev, D. Roth, K. Small and I. Titov, “Unsupervised Rank Aggregation with Domain-Specific Expertise”, *Proc. of the International Joint Conference on Artificial Intelligence (IJCAI)*, July 2009.
- [335] M. Connor, Y. Gertner, C. Fisher and D. Roth, “Minimally Supervised Model of Early Language Acquisition”, *Proc. of the Annual Conference on Computational Natural Language Learning (CoNLL)*, June 2009.
- [336] D. Roth and K. Small, “Interactive Feature Space Construction using Semantic Information”, *Proc. of the Annual Conference on Computational Natural Language Learning (CoNLL)*, June 2009.

- [337] L. Ratinov and D. Roth, “Design Challenges and Misconceptions in Named Entity Recognition”, *Proc. of the Annual Conference on Computational Natural Language Learning (CoNLL)*, June 2009.
- [338] M. Chang, D. Goldwasser, D. Roth and Y. Tu, “Unsupervised Constraint Driven Learning For Transliteration Discovery”, *NAACL’09, The North American Conference on Computational Linguistics*, June 2009.
- [339] J. Pasternack and D. Roth, “Extracting Article Text from the Web with Maximum Subsequence Segmentation”, *WWW’09, The 18th International World Wide Web Conference*, Apr. 2009.
- [340] D. Roth, K. Small and I. Titov, “Sequential Learning of Classifiers for Structured Prediction Problems”, *Proc. of the 12th International Conference on Artificial Intelligence and Statistics (AISTATS)*, April 2009.
- [341] D. Goldwasser and D. Roth, “Transliteration as Constrained Optimization”, *EMNLP’08, The SIGDAT Conference on Empirical Methods in Natural Language*, Oct. 2008.
- [342] E. Bengtson and D. Roth, “Understanding the Value of Features for Coreference Resolution”, *EMNLP’08, The SIGDAT Conference on Empirical Methods in Natural Language*, Oct. 2008.
- [343] M. Connor and Y. Gertner and C. Fisher and D. Roth, “Baby SRL: Modeling Early Language Acquisition”, *CoNLL’08: The 12th Conference on Natural Language Learning*, Aug. 2008.
- [344] V. Srikumar and R. Reichart and M. Sammons and A. Rappoport and D. Roth, “Extraction of Entailed Semantic Relations Through Syntax-based Comma Resolution”, *ACL’08, the 42nd International Conference of the Association of Computational Linguistics*, Jun. 2008.
- [345] B. Liebald and D. Roth and N. Shah and V. Srikumar, “Proactive Intrusion Detection”, *AAAI’08, The National Conference on Artificial Intelligence*, Jul. 2008.
- [346] M. Chang and L. Ratinov and D. Roth and V. Srikumar, “Importance of Semantic Representation: Dataless Classification”, *AAAI’08, The National Conference on Artificial Intelligence*, Jul. 2008.
- [347] M. Chang and L. Ratinov and N. Rizzolo and D. Roth, “Learning and Inference with Constraints”, *AAAI’08, The National Conference on Artificial Intelligence*, Jul. 2008.
- [348] D. Roth and Kevin Small, “Active Learning for Pipeline Models”, *AAAI’08, The National Conference on Artificial Intelligence*, Jul. 2008.
- [349] A. Klemetiev and D. Roth and K. Small, “Unsupervised Rank Aggregation with Distance-Based Models”, *ICML’08, 22nd International Conference on Machine Learning*, Jul. 2008.
- [350] D. Goldwasser and D. Roth, “Active Sample Selection for Named Entity Transliteration”, *ACL’08, the 42nd International Conference of the Association of Computational Linguistics*, Jun. 2008.
- [351] M. A. Rahurkar, D. Roth and T. S. Huang, “Which Apple are you talking about”, *WWW’08, The 17th International World Wide Web Conference*, Apr. 2008.

- [352] M. Chang and L. Ratinov and D. Roth, “Guiding Semi-Supervision with Constraint-Driven Learning”, *ACL’07, the 41st International Conference of the Association of Computational Linguistics*, Jun. 2007.
- [353] S. Har-Peled and D. Roth and D. Zimak, “Maximum Margin Coresets for Active and Noise Tolerant Learning”, *IJCAI’07, the 20th International Joint Conference on Artificial Intelligence*, Jan. 2007.
- [354] N. Rizzolo and D. Roth, “Modeling Discriminative Global Inference”, *ICSC’07, The First International Conference on Semantic Computing*, Aug. 2007.
- [355] M. Connor and D. Roth, “Context Sensitive Paraphrasing with a Single Unsupervised Classifier”. *ECML’07, The European Conference on Machine Learning*, Sept. 2007.
- [356] A. Klementiev, D. Roth, and K. Small, “An Unsupervised Learning Algorithm for Rank Aggregation”. *ECML’07, The European Conference on Machine Learning*, Sept. 2007.
- [357] D. Roth and K. Small “Margin-based Active Learning for Structured Output Spaces”, *ECML’06, The European Conference on Machine Learning*, Sept. 2006.
- [358] R. Braz, E. Amir and D. Roth, “MPE and Partial Inversion in Lifted Probabilistic Variable Elimination”, *AAAI’06, The National Conference on Artificial Intelligence*, Jul. 2006.
- [359] A. Klementiev and D. Roth, “Named Entity Transliteration and Discovery from Multilingual Comparable Corpora”, *NAACL’06, The North American Conference on Computational Linguistics*, June 2006.
- [360] A. Klementiev and D. Roth, “Weakly Supervised Named Entity Transliteration and Discovery from Multilingual Comparable Corpora”, *COLING-ACL’06, The joint conference of the International Committee on Computational Linguistics and the Association for Computational Linguistics*, July 2006.
- [361] M. Chang, Q. Do and D. Roth, “Local Search for Bottom-Up Dependency Parsing”, *COLING-ACL’06, The joint conference of the International Committee on Computational Linguistics and the Association for Computational Linguistics*, July 2006.
- [362] M. Chang, Q. Do and D. Roth, “A Pipeline Model for Bottom-Up Dependency Parsing”, *CoNLL’06: The 10th Conference on Natural Language Learning*, June 2006.
- [363] C. O. Alm and D. Roth and R. Sproat, “Emotions from text: machine learning for text-based emotion prediction”, *EMNLP/HLT’05, The Joint SIGDAT Conference on Empirical Methods in Natural Language Processing and on Language Technologies*, Oct. 2005.
- [364] D. Roth and W. Yih, “Integer Linear Programming Inference for Conditional Random Fields”, *ICML’05, 22nd International Conference on Machine Learning*, Aug. 2005.
- [365] R. Braz, E. Amir and D. Roth, “Lifted First-Order Probabilistic Inference”, *IJCAI’05, the 19th International Joint Conference on Artificial Intelligence*, Aug. 2005.

- [366] V. Punyakanok, D. Roth and W. Yih, “The Necessity of Syntactic Parsing for Semantic Role Labeling”, *IJCAI’05, the 19th International Joint Conference on Artificial Intelligence*, Aug. 2005.
- [367] V. Punyakanok, D. Roth, W. Yih, and D. Zimak, “Learning and Inference over Constrained Output”, *IJCAI’05, the 19th International Joint Conference on Artificial Intelligence*, Aug. 2005.
- [368] R. Braz, R. Girju, V. Punyakanok, D. Roth and M. Sammons, “An Inference Model for Semantic Entailment and Question-Answering”, *AAAI’05, The National Conference on Artificial Intelligence*, Jul. 2005.
- [369] X. Li and D. Roth, “Discriminative Training of Clustering Functions: Theory and Experiments with Entity Identification”, *CoNLL’05: The 9th Conference on Natural Language Learning*, Jun. 2005.
- [370] V. Punyakanok, D. Roth and W. Yih, “Generalized Inference with Multiple Semantic Role Labeling Systems”, *CoNLL’05: The 9th Conference on Natural Language Learning*, June 2005.
- [371] S. Agarwal and D. Roth, “Learnability of Bipartite Ranking Functions”, *COLT’05, The ACM Conference on Learning Theory*, Jun. 2005.
- [372] B. Ziebart, A. Dey, R. Campbell, and D. Roth, “Learning Automation Policies for Pervasive Computing Environments”, *ICAC’05, The IEEE International Conference on Autonomic Computing*, Jun. 2005.
- [373] S. Agarwal, S. Har-Peled and D. Roth, “A Uniform Convergence Bound for the Area Under an ROC Curve”, *AI & Statistics’05*, Jan. 2005.
- [374] S. Agarwal, T. Graepel, R. Herbrich and D. Roth “A Large Deviation Bound for the Area Under an ROC Curve”, *NIPS-17, The 2004 Conference on Advances in Neural Information Processing Systems*. MIT Press, Dec. 2004.
- [375] Z. Zeng, J. Tu, M. Liu, T. Zhang, N. Rizzolo, Z. Zhang, T. S. Huang, D. Roth, and S. Levinson, “Bimodal HCI-related Affect Recognition”, *ICMI’04, The 6th International Conference on Multimodal Interfaces* Oct., 2004.
- [376] E. Daya, D. Roth and S. Wintner “Learning Hebrew Roots: Machine Learning with Linguistic Constraints”, *EMNLP’04, The Joint SIGDAT Conference on Empirical Methods in Natural Language Processing*, Jul. 2004.
- [377] V. Punyakanok, D. Roth, W. Yih and D. Zimak, “Semantic Role Labeling Via Generalized Inference Over Classifiers”, *COLING-2004, The 20th International Conference on Computational Linguistics*, Aug. 2004.
- [378] X. Li, P. Morie and D. Roth, “Identification and Tracing of Ambiguous Names: Discriminative and Generative Approaches”, *AAAI’04, The National Conference on Artificial Intelligence*, Jul. 2004.

- [379] X. Li, P. Morie and D. Roth, “Robust Reading: Identification and Tracing of Ambiguous Names”, *NAACL’04, The North American Conference on Computational Linguistics*, May 2004.
- [380] D. Roth and W. Yih, “A Linear Programming Formulation for Global Inference in Natural Language Tasks”, *CoNLL’04: The 8th Conference on Natural Language Learning*, May. 2004.
- [381] V. Punyakanok, D. Roth, Y. Tu, W. Yih and D. Zimak, “Semantic Role Labelling Via Generalized Inference Over Classifiers”, *CoNLL’04: The 8th Conference on Natural Language Learning*, May. 2004.
- [382] X. Li, D. Roth and K. Small, “The Role of Semantic Information in Learning Question Classifiers”, *IJCNLP’04: The First International Joint Conference on Natural Language Processing*, Mar. 2004.
- [383] D. Roth and W. Yih, “A Linear Programming Formulation for Global Inference in Natural Language Tasks”, *AI & Math*, Jan. 2004.
- [384] V. Punyakanok, D. Roth and W. Yih, “Mapping Dependency Trees: An Application to Question Answering”, *AI & Math*, Jan. 2004.
- [385] X. Li and D. Roth and Y. Tu, “PhraseNet: Toward a context dependent Lexical Knowledge Base”, *CoNLL’03: The 7th Conference on Natural Language Learning*, Jun. 2003.
- [386] C. Cumby and D. Roth, “On Kernel Methods for Relational Learning”, *ICML’03, 20th International Conference on Machine Learning*, Aug. 2003.
- [387] A. Garg and D. Roth “Margin Distribution and Learning Algorithms”, *ICML’03, 20th International Conference on Machine Learning*, Aug. 2003.
- [388] S. Har-Peled and D. Roth and D. Zimak “Constraint Classification: A Unified Approach to Multiclass Classification and Ranking”, *NIPS-15, The 2002 Conference on Advances in Neural Information Processing Systems*. MIT Press, Dec. 2002.
- [389] S. Har-Peled and D. Roth and D. Zimak “Constraint Classification: A New Approach to Multiclass Classification”, *ALT’02, The Twelfth International Conference on Algorithmic Learning Theory*, Nov. 2002.
- [390] D. Roth and C. Cumby and X. Li, and P. Morie and R. Nagarajan, and V. Punyakanok, and N. Rizzolo, and K. Small and W. Yih, “Question-Answering via Enhanced Understanding of Questions”, *TREC 2002*.
- [391] A. Garg, S. Har-Peled and D. Roth, “On generalization bounds, projection profile, and margin distribution”, *ICML’02, 19th International Conference on Machine Learning*, Jul. 2002.
- [392] C. Cumby and D. Roth, “Learning with Feature Description Logics”, *ILP’02, The 12th International Conference on Inductive Logic Programming* Jul. 2002.
- [393] D. Roth and W. Yih, “Probabilistic Reasoning for Entity and Relation Recognition”, *COLING-2002, The 19th International Conference on Computational Linguistics*, Aug. 2002.

- [394] X. Li, and D. Roth, “Learning Question Classifiers”, *COLING-2002, The 19th International Conference on Computational Linguistics*, Aug. 2002.
- [395] S. Agarwal and D. Roth, “Learning a Sparse Representation for Object Detection”, *ECCV-2002, The 8th European Conference on Computer Vision*, Jun. 2002.
- [396] M-H. Yang, D. Roth and N. Ahuja, “A Tale of Two Classifiers: SNoW vs. SVM in Visual Recognition”, *ECCV-2002, The 8th European Conference on Computer Vision*, Jun. 2002.
- [397] X. Carreras, L. Màrquez, V. Punyakanok and D. Roth, “Learning and Inference for Clause Identification”, *ECML’02, The European Conference on Machine Learning*, Aug. 2002.
- [398] D. Roth and G. Kao and X. Li, and R. Nagarajan, and V. Punyakanok, and N. Rizzolo, and W. Yih, and C. O. Alm, and L. G. Moran, “Learning Components for a Question Answering System”, *TREC 2001*.
- [399] R. Khardon, D. Roth and R. Servedio, “Efficiency versus Convergence of Boolean Kernels for On-Line Learning Algorithms”, *NIPS-14, The 2001 Conference on Advances in Neural Information Processing Systems*. MIT Press, Dec. 2001.
- [400] A. Garg and D. Roth “Understanding Probabilistic Classifiers”, *ECML’01, The European Conference on Machine Learning*, Aug. 2001.
- [401] D. Roth and W. Yih, “Relational Learning via Propositional Algorithms: An Information Extraction Case Study”, *IJCAI’01, the 17th International Joint Conference on Artificial Intelligence*, Aug. 2001.
- [402] A. Garg and D. Roth “Learning Coherent Concepts”, *ALT’01, The Twelfth International Conference on Algorithmic Learning Theory*, Nov. 2001.
- [403] Y. Even-Zohar and D. Roth “A Sequential Model for Multi Class Classification”, *EMNLP’01, The Joint SIGDAT Conference on Empirical Methods in Natural Language Processing*, Jun. 2001.
- [404] X. Li and D. Roth, “Exploring Evidence for Shallow Parsing”, *CoNLL’01: Computational Natural Language Learning*, Jul. 2001.
- [405] A. J. Carlson, J. Rosen and D. Roth, “Scaling Up Context Sensitive Text Correction”, *IAAI’01 The 13th Innovative Applications of Artificial Intelligence Conference*, Aug. 2001.
- [406] J. Chuang and D. Roth, “Gene recognition based on DAG shortest paths”, *ISMB’01, The International Conference on Intelligent Systems for Molecular Biology* Jul., 2001.
- [407] Punyakanok, V. and D. Roth, “The Use of Classifiers in Sequential Inference”, *NIPS-13, The 2000 Conference on Advances in Neural Information Processing Systems*. MIT Press, 2001.
- [408] Punyakanok, V. and D. Roth, “Shallow Parsing by Inferencing with Classifiers”, *CoNLL’00: Computational Natural Language Learning*, Sept. 2000.

- [409] D. Roth and D. Zelenko, “Toward a theory of learning coherent concepts”, *AAAI’00, The National Conference on Artificial Intelligence*, Jul. 2000.
- [410] C. Cumby and D. Roth, “Relational Representations that Facilitate Learning”, *KR’00, the International Conference on Knowledge Representations and Reasoning*, Apr. 2000.
- [411] Y. Even-Zohar and D. Roth, “A Classification Approach to Word Prediction”, *NAACL’00, The North American Conference on Computational Linguistics*, May 2000.
- [412] E. F. Tjong Kim Sang, W. Daelemans, H. Déjean, R. Koeling, Y. Krymolowski, V. Punyakanok and D. Roth, “Applying System Combination to Base Noun Phrase Identification”, *COLING-2000, The 18th International Conference on Computational Linguistics*, Aug. 2000.
- [413] D. Roth, M-H. Yang and N. Ahuja, “Learning to Recognize Objects”, *CVPR’00, IEEE Conference on Computer Vision and Pattern Recognition*, Jun. 2000.
- [414] M-H. Yang, D. Roth, and N. Ahuja, “Learning To Recognize 3D Objects With SNoW”, *ECCV-2000, The Sixth European Conference on Computer Vision*, Jun. 2000.
- [415] M-H. Yang, D. Roth, and N. Ahuja, “A SNoW-Based Face Detector”, *NIPS-12, The 1999 Conference on Advances in Neural Information Processing Systems*. MIT Press, 2000.
- [416] M-H. Yang, D. Roth and N. Ahuja, “View-Based 3D Object Recognition Using SNoW”, *ACCV-2000, The 2000 Asian Conference on Computer Vision*.
- [417] D. Roth, “Learning in Natural Language”, *IJCAI’99, the 16th International Joint Conference on Artificial Intelligence*, Aug. 1999.
- [418] R. Khardon and D. Roth and L. G. Valiant, “Relational Learning for NLP using Linear Threshold Elements”, *IJCAI’99, the 16th International Joint Conference on Artificial Intelligence*, Aug. 1999.
- [419] M. Muñoz, V. Punyakanok, D. Roth and D. Zimak, “A Learning Approach to Shallow Parsing”, *EMNLP-VLC’99, the Joint SIGDAT Conference on Empirical Methods in Natural Language Processing and Very Large Corpora*, Jun. 1999.
- [420] Y. Even-Zohar and D. Roth and D. Zelenko, “Word Prediction and Clustering”, *The Bar-Ilan Symposium on the Foundations of Artificial Intelligence*, Israel, June, 1999.
- [421] D. Roth, “Learning to Resolve Natural Language Ambiguities: A Unified Approach” *AAAI’98, The National Conference on Artificial Intelligence*, Jul. 1998, pp. 806–813.
- [422] D. Roth and D. Zelenko, “Part of Speech Tagging Using a Network of Linear Separators”, *COLING-ACL’98, The 17th International Conference on Computational Linguistics*, Aug. 1998 pp. 1136–1142.
- [423] R. Basri, D. Roth and D. Jacobs, “Clustering Appearances of 3D Objects”, *CVPR’98, IEEE Conference on Computer Vision and Pattern Recognition*, Jun. 1998.

- [424] A. Grove and D. Roth, “Linear concepts and hidden variables: An empirical study”, *NIPS-10, The 1997 Conference on Advances in Neural Information Processing Systems*, MIT Press, 1998, pp. 500–506.
- [425] I. Dagan, Y. Karov and D. Roth, “Mistake-Driven Learning in Text Categorization”, *EMNLP’97, The Second Conference on Empirical Methods in Natural Language Processing*, Aug. 1997, pp. 55–63.
- [426] D. Roth, “A Connectionist Framework for Reasoning: Reasoning with Examples”, *AAAI’96, The National Conference on Artificial Intelligence*, Aug. 1996, pp. 1256–1261.
- [427] A. R. Golding and D. Roth, “Applying Winnow to Context-Sensitive Spelling Correction”, *ICML’96, 13th International Conference on Machine Learning*, Jul. 1996, pp. 182–190.
- [428] R. Greiner, A. J. Grove and D. Roth, “Learning Active Classifiers” *ICML’96, 13th International Conference on Machine Learning*, Jul. 1996, pp. 207–215.
- [429] D. Roth, “Learning to Reason: The Non-Monotonic Case”, *IJCAI’95, the 14th International Joint Conference on Artificial Intelligence*, Aug. 1995, pp. 1178–1184.
- [430] R. Khardon and D. Roth, “Default-Reasoning with Models”, *IJCAI’95, the 14th International Joint Conference on Artificial Intelligence*, Aug. 1995, pp. 319–325.
- [431] R. Khardon and D. Roth, “Learning to Reason with Restricted View”, *COLT’95, The Eighth ACM Conference on Computational Learning Theory*, Jul. 1995, pp. 301–310.
- [432] R. Khardon and D. Roth, “Reasoning with Models”, *AAAI’94, The National Conference on Artificial Intelligence*, Aug. 1994, pp. 1148–1153.
- [433] R. Khardon and D. Roth, “Learning to Reason”, *AAAI’94, The National Conference on Artificial Intelligence*, Aug. 1994, pp. 682–687.
- [434] A. Blum, R. Khardon, E. Kushilevitz L. Pitt and D. Roth, “On Learning Read- k -Satisfy- j DNF”, *COLT’94, The Seventh ACM Conference on Computational Learning Theory*, Jul. 1994, pp. 317–326.
- [435] E. Kushilevitz and D. Roth, “On Learning Visual Concepts and DNF Formulae”, *COLT’93, The Sixth ACM Conference on Computational Learning Theory*, Jul. 1993, pp. 317–326.
- [436] D. Roth, “On the Hardness of Approximate Reasoning”, *IJCAI’93, the 13th International Joint Conference on Artificial Intelligence*, Aug. 1993, pp. 613–618.
- [437] K. Daniels, V. J. Milenkovic and D. Roth, “Finding the Maximum Area Axis-Parallel Rectangle in a Simple Polygon”, *CCCG-93, the Fifth Canadian Conference on Computational Geometry*, Aug. 1993, pp. 322–327.
- [438] M. Mavronicolas and D. Roth, “Efficient, Strongly Consistent Implementation of Shared Memory”, *6th International Workshop on Distributed Algorithms, WDAG ’92*, Nov. 1992, pp. 346–361. (Springer-Verlag Lecture Notes in Computer Science Series Vol. 647.)

- [439] M. Mavronicolas and D. Roth, “Sequential Consistency and Linearizability: Read/Write Objects”, In Proceedings of the 29th Annual Allerton Conference on Communication, Control and Computing, Oct. 1991, pp. 683–692.

PUBLICATIONS IN WORKSHOPS PROCEEDINGS

- [440] Hongming Zhang, Yintong Huo, Xinran Zhao, Yangqiu Song, and Dan Roth, “Learning Contextual Causality Between Daily Events From Time-Consecutive Images”, *A CVPR Workshop on Causality in Vision*, (2021)
- [441] Tatiana Tsygankova, Francesca Marini, Stephen Mayhew, and Dan Roth, “Building Low-Resource NER Models Using Non-Speaker Annotations”, *A NAACL Workshop on Data Science with Human-in-the-loop (DaSH-LA)*, (2021)
- [442] Oshin Agarwal, Sanjay Subramanian, Ani Nenkova and Dan Roth, “Evaluation of Named Entity Coreference”, *CRAC’19, The Second NAACL Workshop on Computational Models of Reference, Anaphora and Coreference*, 2019.
- [443] A. Narayan-Chen, C. Graber, M. Das, M. R. Islam, S. Dan, S. Natarajan, J. R. Doppa, J. Hockenmaier, M. Palmer, and D. Roth, “Towards Problem Solving Agents that Communicate and Learn”, *ACL Workshop on Language Grounding for Robotics*, 2017.
- [444] R. Wities, V. Shwartz, G. Stanovsky, M. Adler, O. Shapira, S. Upadhyay, D. Roth, E. Martinez Camara, I. Gurevych, and I. Dagan, “A Consolidated Open Knowledge Representation for Multiple Texts”, *EACL Workshop on Linking Models of Lexical, Sentential and Discourse-level Semantics (LSDSem)*, 2017.
- [445] S. Upadhyay, C. Christodoulopoulos and D. Roth, “Making the News - Identifying Noteworthy Events in News Articles”, *NAACL Workshop on EVENTS*, 2016.
- [446] C-P. Lee, K-W. Chang, S. Upadhyay and D. Roth, “Distributed Training of Structured SVM”, *NIPS Workshop on Optimization in Learning*, Dec. 2015.
- [447] M. Sammons, H. Peng, Y. Song, S. Upadhyay, C.-T. Tsai, P. Reddy, S. Roy and D. Roth, “Illinois CCG TAC 2015 Event Nugget, Entity Discovery and Linking, and Slot Filler Validation Systems”, *Text Analysis Conference (TAC)*, Nov. 2015.
- [448] M. Sammons, Y. Song, R. Wang, G. Kundu, C.-T. Tsai, S. Upadhyay, S. Mayhew, S. Ancha, and D. Roth, “Overview of UI-CCG Systems for Event Argument Extraction, Entity Discovery and Linking, and Slot Filler Validation”, *Text Analysis Conference (TAC)*, Nov. 2014.
- [449] X. Cheng, B. Chen, R. Samdani, K-W. Chang, Z. Fei, M. Sammons, J. Wieting, S. Roy, C. Wang, and D. Roth, “Illinois Cognitive Computation Group UI-CCG TAC 2013 Entity Linking and Slot Filler Validation Systems”, *Text Analysis Conference (TAC)*, Nov. 2013.
- [450] D. Yu, H. Li, T. Cassidy, Q. Li, H. Huang, Z. Chen, H. Ji, Y. Zhang and D. Roth, “RPI-BLENDER TAC-KBP2013 Knowledge Base Population System”, *Text Analysis Conference (TAC)*, Nov. 2013.

- [451] R. Samdani, M. Chang and D. Roth, “A Framework for Tuning Posterior Entropy in Unsupervised Learning”, *ICML workshop on Inferring: Interactions between Inference and Learning*, 2012.
- [452] A. Rozovskaya, M. Sammons and D. Roth, “The UI System in the HOO 2012 Shared Task on Error Correction”, *NAACL Workshop on Innovative Use of NLP for Building Educational Applications*, 2012.
- [453] L. Ratinov and D. Roth, “GLOW TAC-KBP 2011 Entity Linking System”, *Text Analysis Conference (TAC)*, 2011.
- [454] V. Vydiswaran, C. Zhai and D. Roth, “Gauging the Internet Doctor: Ranking Medical Claims based on Community Knowledge”, *KDD Workshop on Data Mining for Medicine and Health-Care*, 2011.
- [455] M. Connor, C. Fisher and D. Roth, “The Origin of Syntactic Bootstrapping: A computational Model”, *Boston University Conference on Language Development (BUCLD)*, 2011.
- [456] A. Rozovskaya, M. Sammons, J. Gioja and D. Roth, “University of Illinois System in HOO Text Correction Shared Task”, *Proc. of the European Workshop on Natural Language Generation (ENLG)*, 2011.
- [457] G. Kundu, M-W. Chang and D. Roth, “Prior Knowledge Driven Domain Adaptation”, *ICML’11 Workshop on Combining Learning Strategies to Reduce Label Cost*, Jun. 2011.
- [458] Y. Tu and D. Roth, “Learning English Light Verb Constructions: Contextual or Statistical”, *ACL’11 Workshop on Multiword Expressions*, Jun. 2011.
- [459] N. Johri, D. Roth and Y. Tu, “Experts? Retrieval with Multiword-Enhanced Author Topic Model”, *NAACL’10 Workshop on Semantic Search*, Jun. 2010.
- [460] K. Pham, N. Rizzolo, K. Small, K. Chang and Dan Roth, “Object Search: Supporting Structured Queries in Web Search Engines”, *NAACL’10 Workshop on Semantic Search*, Jun. 2010.
- [461] A. Rozovskaya and D. Roth, “Annotating ESL Errors: Challenges and Rewards”, *NAACL’10 Workshop on Innovative Use of NLP for Building Educational Applications*, Jun. 2010.
- [462] A. Klementiev, D. Roth, K. Small and I. Titov, “Unsupervised Prediction Aggregation”, *NIPS-2009, A Workshop on Learning with Orderings*, Dec. 2009.
- [463] K. Small and D. Roth, “Interactive Feature Space Construction.”, *NIPS-2009, A Workshop on Analysis and Design of Algorithms for Interactive Machine Learning*, Dec. 2009.
- [464] M. Sammons, V.G.V. Vydiswaran, T. Vieira, N. Johri, M.-W. Chang, D. Goldwasser, V. Srikumar, G. Kundu, Y. Tu, K. Small, J. Rule, Q. Do, D. Roth, “Relation Alignment for Textual Entailment Recognition.”, *NIST Text Analysis Conference*, 2009.
- [465] A. Klementiev, D. Roth and K. Small, “A Framework for Unsupervised Rank Aggregation”, *SIGIR’08, A Workshop on Learning to Rank for Information Retrieval*, Jul. 2008.

- [466] M. Chang, L. Ratinov and D. Roth, “Constraints as Prior Knowledge”, *ICML’08, A Workshop on Prior Knowledge for Text and Language Processing*, Jul. 2008.
- [467] J. D. Nath and D. Roth, “A Sequential Model of Learning for Multi-Class Classification using Linear Classifiers”, *IJCAI’07 Workshop on Complex Valued Neural Networks and Neuro-Computing*, Jan. 2007.
- [468] A. Klementiev and D. Roth, “Named Entity Discovery from Multilingual Corpora”, *NIPS-2006, A Workshop on Machine Learning for Multilingual Information Access*, Dec. 2006.
- [469] R. Braz, E. Amir and D. Roth, “MPE and Partial Inversion in Lifted Probabilistic Variable Elimination”, *ICML’06 Workshop on Workshop on Open Problems in Statistical Relational Learning*, Jun. 2006.
- [470] D. Roth and K. Small, “Active Learning with Perceptron for Structured Output”, *ICML’06 Workshop on Learning in Structured Output Spaces*, Jun. 2006.
- [471] M. Connor and D. Roth, “Context Sensitive Paraphrasing”, *The Midwest Computational Linguistics Colloquium (MCLC)*, May 2006.
- [472] R. Braz, R. Girju, V. Punyakanok, D. Roth and M. Sammons, “Knowledge Representation for Semantic Entailment and Question-Answering”, *An IJCAI’05 Workshop on Knowledge and Inference for Question Answering*, July 2005.
- [473] X. Li and D. Roth, “Discriminative Training of Clustering Functions: Theory and Experiments with Entity Identification”, *The Midwest Computational Linguistics Colloquium (MCLC)*, May 2005.
- [474] R. Braz, R. Girju, V. Punyakanok, D. Roth and M. Sammons, “An Inference Model for Semantic Entailment in Natural Language”, *The Midwest Computational Linguistics Colloquium (MCLC)*, May 2005.
- [475] V. Punyakanok, D. Roth and W. Yih, “The Necessity of Syntactic Parsing for Semantic Role Labeling”, *The Midwest Computational Linguistics Colloquium (MCLC)*, May 2005.
- [476] R. Girju and D. Roth and M. Sammons, “Token-level Disambiguation of VerbNet classes”, *The Interdisciplinary Workshop on Verb Features and Verb Classes*, Mar. 2005.
- [477] X. Li and D. Roth, “Supervised Discriminative Clustering”, *NIPS-17, A Workshop on Learning Structured Output*, Dec. 2004.
- [478] V. Punyakanok, D. Roth, W. Yih, and D. Zimak, “Learning via Inference over Structurally Constrained Output”, *NIPS-17, A Workshop on Learning Structured Output*, Dec. 2004.
- [479] R. de Salvo Braz and D. Roth, “Functional Subsumption in Feature Description Logic”, *NIPS 2003 Workshop on Feature Extraction*, a Workshop of the 2003 Neural Information Processing Systems (NIPS) conference, Dec. 2003.
- [480] C. Cumby and D. Roth, “Feature Extraction Languages for Propositionalized Relational Learning”, *IJCAI’03 Workshop on Learning Statistical Models from Relational Data* Aug. 2003.

- [481] Y. Krymolowski and D. Roth, “Incorporating Knowledge in Natural Language Learning: A Case Study”, *COLING-ACL’98 Workshop on the Usage of WordNet in Natural Language Processing Systems*, Aug. 1998, pp. 121–127.
- [482] R. Basri, D. Roth and D. Jacobs, “Clustering Appearances of 3D Objects”, *Workshop on Learning in Computer Vision, held in conjunction with the ECCV’98*, Jun. 1998.
- [483] R. Khardon and D. Roth, “Exploiting Relevance in Model-Based Reasoning”, In *AAAI Fall Symposium on Relevance*, Nov. 1994.