JUAN CERVIÑO

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EDUCATION

University of Pennsylvania. Philadelphia, PA
Ph.D. in Electrical and Systems Engineering July 2019-Present
Advisor: Prof. Alejandro Ribeiro

Universidad de la República Oriental del Uruguay. Montevideo, Uruguay
B.S. in Electrical Engineering 2012-2018

RESEARCH INTERESTS

Machine Learning, Optimization, Graph Neural Networks, Networked Systems, Signal Processing.

PUBLICATIONS

Journals

1. Juan Cerviño, Juan Andrés Bazerque, Miguel Calvo-Fullana, and Alejandro Ribeiro. Multi-task reinforcement learning in reproducing kernel hilbert spaces via cross-learning. *IEEE Transactions on Signal Processing*, 69:5947–5962, 2021

2. Juan Cerviño, Luana Ruiz, and Alejandro Ribeiro. Learning by transference: Training graph neural networks on growing graphs. *IEEE Transactions on Signal Processing*, pages 1–15, 2023

Machine Learning Conferences

1. Zebang Shen, Juan Cerviño, Hamed Hassani, and Alejandro Ribeiro. An agnostic approach to federated learning with class imbalance. In *International Conference on Learning Representations*, 2022

Signal Processing Conferences

1. Juan Cerviño, Juan Andrés Bazerque, Miguel Calvo-Fullana, and Alejandro Ribeiro. Multi-task supervised learning via cross-learning. In *29th European Signal Processing Conference, EUSIPCO 2021, Dublin, Ireland, August 23-27, 2021*. IEEE, 2021

2. Juan Cerviño, Luana Ruiz, and Alejandro Ribeiro. Training stable graph neural networks through constrained learning. In *ICASSP 2022 - 2022 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pages 4223–4227, 2022

3. Juan Cerviño, Luana Ruiz, and Alejandro Ribeiro. Training graph neural networks on growing stochastic graphs. *[To Appear] ICASSP 2023*, 2022

4. Juan Cerviño, Juan Andres Bazerque, Miguel Calvo-Fullana, and Alejandro Ribeiro. Multi-task bias-variance trade-off through functional constraints. *[To Appear] ICASSP 2023*, 2022

Control Conferences

1. Juan Cerviño, Juan Andrés Bazerque, Miguel Calvo-Fullana, and Alejandro Ribeiro. Meta-learning through coupled optimization in reproducing kernel hilbert spaces. In *2019 American Control Conference (ACC)*, pages 4840–4846. IEEE, 2019

Preprints

1. Juan Cerviño, Luiz Chamon, Benjamin D Haeffele, Rene Vidal, and Alejandro Ribeiro. Learning globally smooth functions on manifolds. *[Submitted] International Conference on Learning Representations*, 2023

2. Juan Cerviño, Navid NaderiAlizadeh, and Alejandro Ribeiro. Federated representation learning via maximal coding rate reduction. *[Submitted] International Conference on Learning Representations*, 2023

3. Juan Cerviño, Harshat Kumar, and Alejandro Ribeiro. Parameter critic: a model free variance reduction method through imperishable samples. *arXiv preprint arXiv:2009.13668*, 2020

SKILLS

Programming: Python, Pytorch, TensorFlow, Pandas, Matlab, C, PLC (Siemens, Allen Bradley), KRL (Kuka).

INDUSTRY EXPERIENCE

School of Engineering, Universidad de la República Oriental del Uruguay — Montevideo, Uruguay
Research Assistant — August 2018 - March 2019
Host: Prof. Juan A. Bazerque.

- Conducted research in Optimization and Machine Learning Algorithms.

Pensur — Montevideo, Uruguay
Robotics Project and Commissioning Engineer — August 2016 - July 2018

- Developed and designed industrial robotic and automation projects.
- Assisted in the technical coordination between industrial clients, vendors and partners.
- Performed start up commissioning services in USA, Colombia, Mexico, Dominican Republic and Uruguay.

Temac — Montevideo, Uruguay
Control and Product Junior Engineer — December 2015 - July 2016

- Advised clients on industrial solutions.
- Performed industrial sales presentations.

Greatbatch (formerly CCC del Uruguay) — Montevideo, Uruguay
Intern — May 2015 - August 2015

- Tested hardware and firmware of Active Implantable Medical Devices.
- Wrote and corrected test protocols and test results.

TEACHING EXPERIENCE

Department of Electrical and Systems Engineering, University of Pennsylvania — Philadelphia,USA
Teaching Assistant

- ESE 224: Signal and Information Processing, *Undergraduate Level* — Spring, 2023
- ESE 224: Signal and Information Processing, *Undergraduate Level* — Spring, 2022
- ESE 514: Graph Neural Networks, *Graduate Level* — Fall, 2021
- ESE 224: Signal and Information Processing (Head TA), *Undergraduate Level* — Spring, 2021
- ESE 680: Graph Neural Networks (Head TA), *Graduate Level* — Fall, 2020

INVITED TALKS

Learning Globally Smooth Functions on Manifolds
Prof. Nikolai Matni Group Meeting — *Nov 2, 2022*

Learning Globally Smooth Functions on Manifolds
ESE PhD Colloquium — *Nov 2, 2022*

Increase and Conquer: Training Graph Neural Networks in Growing Graphs
Prof. George Pappas Group Meeting — *Oct 29, 2021*

Increase and Conquer: Training Graph Neural Networks in Growing Graphs
ESE PhD Colloquium — *Oct 15, 2021*

Parameter Critic: a Model Free Variance Reduction Method Through Imperishable Samples
ESE PhD Colloquium (Remote) — *Nov 11, 2020*

Meta-Learning through Coupled Optimization in Reproducing Kernel Hilbert Spaces
ESE PhD Colloquium *Oct 2, 2019*

NON-ACADEMIC SHORT COURSES

Kuka Robots: KRL course February 2018. Vilonova i la Geltru, Catalunya, Spain
SICK: Photoelectric Sensor Brochure May 2016. Montevideo,Montevideo, Uruguay
FESTO: PLC Programming March 2016. Resistencia, Chaco, Argentina

PROFESSIONAL MEMBERSHIPS

IEEE Membership Student Member.
IEEE Signal Processing Society (SPS) Membership Student Member.