
ALEXANDER PATTERSON IV

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EDUCATION

- Colgate University**, Hamilton, NY Sept 2000 – May 2001 Transferred. GPA: 3.5
Pursued Bachelor of Arts with concentration in Physics and Computer Science.
- University of Pennsylvania**, School of Engineering and Applied Science, Philadelphia, PA
Bachelor of Science in Engineering Sept 2001 – Aug 2004 Graduated. GPA: 3.7
Major: Electrical Engineering. *Magna Cum Laude*.
PhD student in Computer and Information Science. Sept 2004 – Present.
Class of 1939 Graduate Fellow, Advisor: Kostas Daniilidis.
- Study Abroad:** University of Edinburgh, Scotland. Sept 2002 – May 2003. GPA: 4.0

EXPERIENCE

- Vision Consultant**, KJ Vision, Philadelphia, PA July 2009-Present.
Vehicle Based Surveying: Designed and Implemented a calibration solution for performing city scale surveys using stereoscopic cameras and laser sensors with nominal 10cm accuracy.
Complex Mapping: Designed and Implemented pan/tilt scan-head software for real time 3D mapping and data fusion using stereo cameras and laser scanner. Worked closely with Sarnoff Corporation.
- Vision Consultant**, Provideon LLC., Philadelphia, PA May-June 2008.
Image Calibration: Implemented, tested and troubleshot stereo calibration for a Tier I automotive supplier.
- Research Intern**, GE Corporate Research, Niskayuna, NY June 2007-August 2007.
Stator Bar Inspection Analysis: Evaluated the possibility of using laser scanning methods to inspect stator bar parts for power generators. Worked closely with laser scan system vendors and power generation client.
- Research Assistant (PhD work)**, University of Penn GRASP Laboratory, Philadelphia, PA 2007-2008.
ARM-S project: Built specific object recognition modules, and a system to replace the supplied robot calibration routines.
URGENT project: Urban Reasoning and GEospatial exploitation Technology. Developed algorithms for object recognition in ground and aerial based LiDAR scans. This was joint work with Lockheed Martin's Advanced Technology Laboratory.
Other Significant Projects: Range Image Registration, Achaeoviz, TeleImmersion, Complex Mapping.
- Teaching Assistant**, University of Pennsylvania, Philadelphia, PA 2005-2006.
Introduction to Computer Programming: Java course, designed assignments, taught a lab section and held office hours. Course covered basic programming techniques and data structures in Java.
Robotics: Designed assignments, held office hours, graded assignments and tests. Course covered robot control equations, visual odometry, robot simulation.

PUBLICATIONS

- Automatic Alignment of a Camera with Line Scan LIDAR System, O Naroditsky, A. Patterson, K. Daniilidis, ICRA 2011.
- Object Detection from Large-Scale 3D Datasets using Bottom-up and Top-down Descriptors, A. Patterson, P. Mordohai, K. Daniilidis, ECCV 2008.
- Fully Automatic Registration of 3D Point Clouds, A. Makadia, A. Patterson, K. Daniilidis, ECCV 2006.

RELEVANT SKILLS

- Programming:** Structured C/C++, OOP C++ and Java, OpenGL, Matlab, Linux and Visual Studio.
Experience with point cloud, image, and stereoscopic data.