MICHAEL J. DANIELCZUK

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Education

University of California, Berkeley, Berkeley, CA — 2017-Present
    Ph.D. Student in Electrical Engineering — GPA: 3.94

Princeton University, Princeton, NJ — 2012-2016
    BSE Electrical Engineering (Magna Cum Laude) — GPA: 3.88
    Certificates of Proficiency in Robotics and Intelligent Systems, Computer Science, and Italian Language

Achievements

Peter Mark Prize — 2016
- Awarded annually to one Electrical Engineering graduate with an outstanding record in electronic materials and devices

Phi Beta Kappa — 2016
- Elected to the academic honor society Phi Beta Kappa, representing the top 10% of Princeton's graduating class

Society of Sigma Xi — 2016
- Elected as an Associate Member to the Sigma Xi Scientific Research Society

Gamma Kappa Alpha — 2016
- Elected to the National Italian Honor Society for superior scholastic performance in Italian language, literature and culture

Tau Beta Pi — 2014
- Elected to the engineering honor society Tau Beta Pi as a junior, representing the top eighth of the engineering class

Dorothea van Dyke McLane Prize — 2013
- One of six freshman to receive the Dorothea van Dyke McLane Prize, which recognizes outstanding freshmen in Italian

Eagle Scout (Boy Scouts of America) — 2012

Work Experience

Head of Electrical Engineering, **VirtualApt Corp. (NY)** — 2016-2017
- Designed hardware and software for robots that map and autonomously navigate retail, commercial, and residential spaces for filming virtual reality video
- Designed and built a lens and camera system to capture and wirelessly stream 360 by 180-degree high quality video

Intern, **Group 87, MIT Lincoln Laboratory (MA)** — 2015
- Worked in the Advanced Imager Technology group to characterize charge-coupled devices (CCDs) under development
- Designed and implemented optical test setups, took data while varying several parameters, and analyzed and presented to the group

Intern, **R&D Laser, Electrical Engineering, Nufern (CT)** — 2014
- Designed and assembled printed circuit boards (PCBs) for use in testing new lasers under development
- Tested lasers that were being produced, and developed documentation for future testing

Student Technician, **Transmission Protection and Controls Engineering, Northeast Utilities (CT)** — 2013
- Analyzed faults on transmission power lines and wrote reports on each fault assessing the performance of the system
- Corrected schematic diagrams to ensure all substations met standards and operated correctly during faults

Research Experience and Publications

Automation Sciences Lab, **Professor Ken Goldberg, UC Berkeley** — 2017-Present
- Analyzed linear pushing policies for a robot to allow for higher quality grasping of objects in a bin
- Developing a control policy for a robot that locates and extracts specific objects in a heap for robust manipulation
- Developed computer vision algorithm to segment arbitrary objects by training entirely on synthetic depth images

Sturm Lab, **Professor James Sturm, Princeton University** — 2015-2016
- Researched and wrote a senior thesis which focused on creating an array of microphones from thin film piezoelectric materials that could perform simultaneous source separation
- Analyzed performance of several piezoelectric and electroferret materials and successfully built a working microphone array

Leadership Experience

Volunteer Role Model, **Bay Area Scientists in Schools** — 2017-Present
- Led hands-on robotics lessons for students in first through third grade at public elementary schools in Berkeley, CA area

Leader Trainer and Instructor, **Princeton University Outdoor Action** — 2012-2016
- Led one-week training trips on leadership and wilderness skills to train leaders for freshman backpacking orientation trips
- Taught technical skills, first aid, and Leave No Trace classes for incoming leaders

Tutor, **Princeton University McGraw Center and Residential Colleges** — 2013-2016
- Tutored peers in computer science and mathematics for six hours weekly

Captain and Treasurer, **Princeton Running Club** — 2012-2016
- Collected dues, led training, and organized races for the club

Robotics Mentor, **FIRST LEGO League** — 2011-2012
- Taught programming and mechanical skills weekly to team of faculty children, ages 7-13, in preparation for competition

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Skills

Computer Languages: Matlab, Java, C, C++, Python, AWK, Verilog, HTML/CSS, JavaScript, Bash

Software/Frameworks: Altium Designer, LTSpice, Cadence, Eagle, PSoC Design, ROS, QT, OGRE 3D, PyBullet

Certifications: Wilderness First Responder, Leave No Trace Master Educator

Languages: Italian, Latin, Etruscan

Publications

Danielczuk, M., Matl, M., Gupta, S., Li, A., Lee, A., Mahler, J., & Goldberg, K. (2018). Segmenting Unknown 3D Objects from Real Depth Images using Mask R-CNN Trained on Synthetic Point Clouds. *arXiv preprint arXiv:1809.05825*.

Danielczuk, M.*, Kurenkov, A.*, Balakrishna, A., Matl, M., Martín-Martín, R., Garg, A., Savarese, S., & Goldberg, K. (2018). Mechanical Search: Multi-Step Retrieval of a Target Object from Clutter. *Under Review at International Conference on Robotics and Automation (ICRA).* *Denotes equal contribution

Danielczuk, M., Mahler, J., Correa, C., Goldberg, K. (2018). Linear Push Policies to Increase Grasp Access for Robot Bin Picking. *IEEE International Conference on Automation Science and Engineering (CASE)*, Munich, Germany.