Jennifer Vaccaro

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Education

University of Illinois, Chicago 2020 – present
PhD in Mathematics *Chicago, IL*

Olin College of Engineering 2013 – 2017
B.S in Electrical and Computer Engineering *Needham, MA*

Experience

Graduate TA, Department of Mathematics, Statistics, and Computer Science 2020 – present
University of Illinois, Chicago *Chicago, IL*

- Served as a graduate teaching assistant for the introductory coding sequence, MCS 260 and MCS 275. Currently a TA for Math 220: Differential Equations.
- Duties involve leading discussions, grading assessments, and writing worksheets, quizzes, and solution sets.

Software Engineer II, Deep Submergence Laboratory 2017 – 2020
Woods Hole Oceanographic Institution (WHOI) *Woods Hole, MA*

- Designed software for deep-ocean robots from the National Deep Submergence Facility, including AUV Sentry and ROV Jason. Projects included robotic path-planning algorithms, multibeam sonar control software, device drivers, data post-processing tools, and graphical user interfaces.
- Sailed on 10 oceanographic cruises with AUV Sentry and ROV Jason, on research vessels operated by WHOI, NOAA, Schmidt Oceanographic, Bermuda Institute of Ocean Sciences, and University of Alaska Fairbanks. Duties included integrating navigation and network systems onto the ship, preparing the vehicle for dives, watchstanding, and data post-processing.
- Supervised projects for an entry-level engineer and an undergraduate intern. Contributed to lab and department recruiting and onboarding efforts.

Intern, Platform Engineering Group Summer 2016
Intel Corporation *Santa Clara, CA*

- Designed and implemented several mathematical models for post-silicon validation processes, specifically of the I^2C connections. My methods were incorporated into Intel's electrical validation practices, and the results were recognized through ACM and Microsoft Research's student research competition.

Researcher, REU for Mathematics and Computational Science Summer 2015
Fairfield University *Fairfield, CT*

- Under Dr. Shawn Rafalski, worked with a team of undergraduates to calculate lower volume bounds for hyperbolic 3-orbifolds using a theorem of Agol, Storm, and Thurston. Our work resulted in several presentations and a paper.

Papers and Presentations

Refereed Products

Atkinson, C., Mallepalle, J., Melby, J., Rafalski, S., Vaccaro, J., *Guts and volume for hyperbolic 3-orbifolds with underlying space S^3*. Topology and its Applications, Volume 243, 1 July 2018, Pages 100–113. arxiv.org link

Conference Products

Vaughn, I., Suman, S., Berkowitz, Z., Vaccaro, J., et al. *Upgrading to ROS at 6000m.* IEEE AUV, November 2018. ieee.org link

Vaccaro, J., *Applying Computer Modeling to Post-Silicon Electrical Validation.* ACM Student Research Competition, 2016. acm.org link

Conference Presentations

Vaccaro, J., Hakim, N., Nov 2016 ACM ICCAD, Austin TX *Applying Computer Modeling to Post-Silicon Electrical Validation.* (Poster and Talk)

Atkinson, C., Mallepalle, J., Melby, J., Rafalski, S., Vaccaro, J., Jan 2016 Joint Mathematics Meetings (JMM) Seattle, WA *Volume Estimates for Hyperbolic 3-Orbifolds.* (Poster)

Atkinson, C., Mallepalle, J., Melby, J., Rafalski, S., Vaccaro, J., Sep 2015 Women in Math in New England (WiMiN) Smith College, Northampton, MA *Volume estimates for certain hyperbolic 3-dimensional orbifolds.* (Talk)

Atkinson, C., Mallepalle, J., Melby, J., Rafalski, S., Vaccaro, J., July 2015 3rd Northeast Mathematics Undergraduate Research Mini-Symposium, UConn, Storrs, CT *Volume estimates for certain hyperbolic 3-dimensional orbifolds* (Talk)

Awards

2021 UIC MSCS Graduate Teaching Assistant Award

2018 WHOI Technical Staff Training and Individual Development Funding Award

2017 **Meritorious Winner**, COMAP Mathematical Competition in Modeling

2017 **2nd Place**, ACM/Microsoft Research Student Research Competition Grand Finals

2016 **1st Place**, ACM/Microsoft Research Student Research Competition @ICCAD

2013-2017 Olin College of Engineering Half-Tuition Merit Scholarship

Skills and Interests

Languages and Frameworks: Python, C/C++, MATLAB, LaTeX, ROS, Qt, Git
Interfaces: Serial (RS232 and RS485), UDP, TCP, I^2C
Research Interests: Analysis, hyperbolic geometry, low-dimensional topology, math modeling, math visualization
Personal Interests: Choral music, hiking, rock music, rugby, soccer, youth outreach