

Petras Swisler – Curriculum Vitae

McCormick School of Engineering
Northwestern University
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Research Interests

- Multi-robot systems
- Robotic self-assembly
- Swarm-human interaction
- Social insect behavior
- Mechatronics
- Educational robotics

Education

- (Pursuing) Ph.D. Mechanical Engineering** 2016 –
Northwestern University, Evanston, IL June 2022 (expected)
Proposed Thesis: Large-Scale Robotic Self-Assembly Using Alignment-Agnostic Docking
Advisor: Michael Rubenstein
- M.S. Mechanical Engineering** 2018
Northwestern University, Evanston, IL
Thesis: FireAnt: A Modular Robot with Full-Body Continuous Docks
Advisor: Michael Rubenstein
- B.S. Mechanical Engineering** 2012
Rose-Hulman Institute of Technology, Terre Haute, IN
Minors: Robotics, Electrical Engineering, Spanish

Peer-Reviewed Publications

- Petras Swisler** and Michael Rubenstein. “ReactiveBuild: environment-adaptive self-assembly of amorphous structures.” *2021 Int’l Symposium on Distributed Autonomous Robotic Systems (DARS)*.
(Winner: Best student paper)
- Petras Swisler** and Michael Rubenstein. “FireAnt3D: a 3D self-climbing robot towards non-latticed robotic self-assembly.” *2020 IEEE Int’l Conference on Intelligent Robots and Systems (IROS)*.
- Petras Swisler** and Michael Rubenstein “FireAnt: a modular robot with full-body continuous docks.” *2018 IEEE International Conference on Robotics and Automation (ICRA)*.

Awards and Notable Achievements

- Patent Application: “Method and system for joining robotic components” 2021
- McCormick School of Engineering Terminal Year Fellowship 2021
- Best Student Paper at DARS 2021: *ReactiveBuild* 2021
- Murphy Fellowship 2016
- 1st Place Overall, ASME Human Powered Vehicle Competition 2010, 2011, 2012

Teaching Experience

- Teaching Assistant** for ME 333: Introduction to Mechatronics 2021
- Volunteer Teacher** for Northwestern Splash outreach program 2016 – 2021

Employment

Graduate Research Assistant at Northwestern University. Evanston, IL.	2016 – Present
Teaching Assistant at Northwestern University. Evanston, IL. “ME 333: Introduction to Mechatronics”	2021
Mechanical Engineer at Parametric Solutions Incorporated. Jupiter, FL.	2012 – 2016

Talks

- “ReactiveBuild: environment-adaptive self-assembly of amorphous structures.” June 2021
Virtual presentation and live Q&A session for DARS conference ([Link](#))
- “FireAnt3D: a 3D self-climbing robot towards non-latticed robotic self-assembly.” Nov. 2020
Virtual presentation and Q&A session for IROS conference ([Link](#))
- “FireAnt3D: a 3D self-climbing robot towards non-latticed robotic self-assembly.” July 2020
Invited by Chicago-area Robotics and Automation Society.
- “Climbing over the bodies of your peers:
The locomotive challenges of robotic self-assembly.” Sept. 2019
Invited by the Northwestern Mechanical Engineering Graduate Student Society.
- “FireAnt: a modular robot with full-body continuous docks” May 2018
Presented at Swarm Robotics workshop at ICRA 2018.
- “ASME HPVC best practices: team history and advice to new teams.” June 2012
Invited by ASME Human Powered Vehicle Challenge.

Professional and Community Service

Reviewer:

- IEEE Transactions on Robotics (T-Ro)
- International Symposium on Distributed Autonomous Robotic Systems (DARS)
- Robotics Science and Systems (RSS)
- IEEE International Conference on Intelligent Robots and Systems (IROS)
- Swarm Intelligence

Outreach:

- “Middle School Robotics Tournament” at U. Chicago Laboratory School (Judge) 2021
- “Day in the Life of a STEM-itist” (Presenter). Evanston, IL. 2020 – 2021
- “Northwestern Splash” (Teacher, Treasurer, Secretary). Evanston, IL. 2016 – 2021
- “Science in Your Community Center” (Volunteer Mentor). Evanston, IL. 2017 – 2020
- “National Robotics Week” (Volunteer). Chicago, IL. 2019