

Griffon McMahon

griffonmcmahon@gmail.edu | 918-978-0298 | griffonmcmahon.com

EDUCATION

University of Pennsylvania <i>Master of Science in Engineering, Robotics</i>	Philadelphia, PA May 2022
Purdue University <i>Bachelor of Science in Mechanical Engineering, Minor in Classical Studies</i>	West Lafayette, IN May 2020

EXPERIENCE

Graduate Research Fellow <i>ScalAR Lab, University of Pennsylvania</i>	August 2022–Present Philadelphia, PA
<ul style="list-style-type: none">Examines the effects of inserting a paucity of agents into a swarm with the goal of influencing the behavior of the wholeQuantifies uncertainty in unpredictable systems with conformal prediction used in the realm of target trackingTracks agents with unknown dynamics in the presence of occlusions and faulty models	
Naval Research Enterprise Internship Program (NREIP) <i>United States Naval Research Laboratory</i>	Summer 2024 Washington, DC
<ul style="list-style-type: none">Analyzed many agents swarming modeled through delay differential equations using mean field analysisEmployed bifurcation theory to determine the conditions in which a swarm would switch from one behavior to another	
Graduate Research Assistant <i>Kod*lab, University of Pennsylvania</i>	January 2021–May 2022 Philadelphia, PA
<ul style="list-style-type: none">Developed gaits for Jerboa, an underactuated and tailed bipedal robot, to take advantage of internal degrees of freedom for improved locomotionAnalyzed dynamics behind hybrid, non-linear systems—especially legged robotics—using templates and anchorsImplemented control algorithms in both simulation and hardware using event-based guards and feedback control	
Undergraduate Research Assistant <i>Jain Research Lab, Purdue University</i>	June–December 2018, August 2019–May 2020 West Lafayette, IN
<ul style="list-style-type: none">Maintained and developed code using partially-observable Markov decision processes and Bayesian statistics to implement machine learningAuthored conference paper applying clustering algorithms to human behaviorConducted human subject research to sense trust in automated systems using real-time sensorsCrafted experiment design for examining human-machine interactions in the case of autonomous vehicles using a driving simulator	
Teaching Assistant <i>MEAM 620: Advanced Robotics, University of Pennsylvania</i>	Fall 2021, Springs 2022, 2024–25 Springs 2022, 2024–25
<ul style="list-style-type: none">Updated legacy codebase post-pandemic for quadcopter control with minimizing learning curve and chance of errors under student use in mindGuided students in deploying code on quadrotors (Crazyflie 2.1) for the purposes of control, trajectory planning, and path findingMaintained drone hardware throughout crashes stemming from student-made code	
<i>MEAM 520: Introduction to Robotics, University of Pennsylvania</i>	Fall 2021
<ul style="list-style-type: none">Assisted students with manipulator control of a Franka Emika Panda Arm in simulation and hardware for a pick and place task	
Awards and Honors	
<i>First Place, 10th F1TENTH Autonomous Grand Prix at ICRA</i>	2022
<i>Master's Award for Teaching</i>	2022
<i>H. William Bottomley Research Scholarship</i>	2019
<i>Office of Undergraduate Research Scholarship</i>	2019

TECHNICAL SKILLS

Languages: MATLAB, Python, C/C++, Javascript, HTML/CSS

Miscellaneous Software: ROS, Linux Computing, SolidWorks, LabVIEW, Git

PUBLICATIONS

- **G. McMahon**, K. Akash, T. Reid, and N. Jain, “On Modeling Human Trust in Automation: Identifying distinct dynamics through clustering of Markovian models.” *IFAC-PapersOnLine*, 2020
- K. Akash, **G. McMahon**, T. Reid, and N. Jain, “Human Trust-based Feedback Control: Dynamically varying automation transparency to optimize human-machine interactions.” *IEEE Control Systems Magazine*, 2020