Alan Papalia

Curriculum Vitae

Phone +1 (502) 550 8770
Email apapalia@mit.edu
Website alanpapalia.github.io

Education

2019-2024 (Est.) Massachusetts Institute of Technology / Woods Hole Oceanographic Institution
PhD Ocean Engineering
Advisor: John Leonard

2015-2019 University of Illinois at Urbana-Champaign
BS Mechanical Engineering

Research Direction

I aim to enhance the capabilities of multi-robot systems through theoretically grounded algorithms which consider probabilistic uncertainty and system robustness. I work to construct autonomous multi-robotic systems which efficiently explore, perceive, and communicate to collaboratively build task-specific representations of the environment. I seek to combine optimization and probability to construct theoretical guarantees on robotic tasks while using graph-theoretic representations of multi-robot systems to obtain insights into system structure and leverage this structure to improve task efficiency.

Publications

[1] **Alan Papalia** and John Leonard. "Network Localization Based Planning for Autonomous Underwater Vehicles with Inter-Vehicle Ranging". In: *2020 IEEE/OES Autonomous Underwater Vehicle Symposium (AUV)*. IEEE. 2020, pp. 1–6.

[2] Lillian Clark, **Alan Papalia**, Jonata Carvalho, Luca Mastrostefano, and Bhaskar Krishnamachari. "Algorithms for Inter-Mobile-Device Distance Estimation using Network Localization". In: (2020). (In Review), pp. 1–19. arXiv: `arXiv:2007.10162v2`.

Employment History

Sep 2019 - Present **Massachusetts Institute of Technology**
Graduate Student
Advisor: John Leonard
Research on localization, mapping, and controls for multi-robot systems

Jun 2018 - Sep 2018 **Oregon State University**
Undergraduate Research Assistant
Advisors: Cindy Grimm and Ravi Balasubramanian
Implemented and tested object pose-tracking systems for robotic grasping experiments

Sep 2016 - Sep 2018 **University of Illinois at Urbana-Champaign**
Undergraduate Research Assistant
Advisors: Placid Ferreira and Jorge Correa
Developed cloud-based web applications for distributed cloud manufacturing network

Jun 2017 - Aug 2017 **Seurat Technologies**
Mechanical Engineering Intern
Design and integration of cooling system for metal additive-manufacturing system

Awards

Best Poster *(2020 ACM SIGCOMM N2Women)*
Woods Hole Next Wave Fellow *(2019) 1 year full tuition & stipend*
Illinois Engineering Achievement Scholar
GM/Philip W. Leistra Jr. Society of Automative Engineers Award
UIUC Dean's List
Eagle Scout

Professional Activities

Mentorship

1. Undergraduate Research, Sophia Franklin; *Low-cost Swarm Robot for Collaborative Mapping* (2020)
2. Undergraduate Research, Hunter Celio; *3-DOF Robot Arm for Mobile Manipulation* (2020)
3. Project Team Mentor, UIUC - ME270, Design for Manufacturing (2017-2018)

Service

1. Executive Board Member, MIT MakerWorks (2020-)
2. Volunteer, MIT-WHOI Applicant Support & Knowledgebase (2019-)
3. Robotics Outreach Volunteer, Takeoff Space (2019)
4. Assistant Curriculum Designer, UIUC - ME270, Design for Manufacturing (2018)

Leadership

1. Captain, Formula SAE *(Student Design Team)*. University of Illinois (2018-2019)
2. Project Lead, Formula SAE *(Student Design Team)*. University of Illinois (2016-2019)

Skills

Prototyping: Welding, Machining, Soldering
Programming: C++, Python, Robot Operating System, OpenCV, Point Cloud Library
Design: CAD, Finite Element Analysis, Design of Experiments