Matthew Romano, PhD

Robotics Researcher · Software Engineer

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Experience

SkySpecs *Ann Arbor, MI*
Robotics Autonomy Engineer *September 2022 - Present*

- Making renewable energy more affordable via autonomous UAS wind turbine inspection

University of Michigan (UMich) *Ann Arbor, MI*
Researcher, Software Engineer, Instructor *September 2017 - September 2022*

- Developed an opensource quadrotor and flight controller that integrates reliable, low-latency motion capture feedback
- Led a team to win the AFRL Swarm and Search AI Competition, a 3-month hackathon focused on multi-UAS wildfire mapping
- Developed a novel haptic guidance interface for multilift slung load transportation with real user experiments
- Designed a novel high density airspace management strategy that can handle pop-up obstacles and vehicle failures
- Demonstrated an autonomous roofing concept via a nailgun-equipped octocopter with a video that received nearly 400,000 views
- Taught EECS 592: Foundations of Artificial Intelligence as a graduate student instructor
- Co-developed and co-taught ROB 103: Robotic Mechanisms, a new first-year, hands-on robotics course

National Security Innovation Network (NSIN) *Ann Arbor, MI*
Independent Consultant *January 2020 - June 2020*

- Interviewed DoD personnel and reviewed maintenance workflows to understand maintenance data challenges
- Proposed system to assist DoD maintainers in data collection via audio/video information extraction using CV/NLP

Sprite Robotics *Champaign, IL*
Robotics Firmware Engineer *January 2017 - May 2017*

- Researched and implemented autonomous navigation strategies for a robotic cat toy platform
- Developed future product ideas including an immersed experience via a 360 degree camera

Bretl Lab, University of Illinois Urbana-Champaign (UIUC) *Champaign, IL*
Undergraduate Research Assistant *October 2015 - December 2016*

- Compared performance of monocular simultaneous localization and mapping (SLAM) algorithms.
- Improved feature tracking algorithms through integration of inertial measurement unit (IMU) data.

Education

University of Michigan (UMich) *Ann Arbor, MI*
PhD in Robotics *August 2022*

- Dissertation: Planning, Control, and Estimation for Diverse Multi-UAS Missions. Advisor: Ella M. Atkins

MS in Robotics *May 2019*

University of Illinois Urbana-Champaign (UIUC) *Champaign, IL*
BS in Electrical Engineering with a Computer Science Minor. GPA: 3.95 *December 2016*

Honors & Awards

2019	**AFRL Swarm and Search AI Competition,** First Place Team ($26,000)	*Dayton, OH*
2019	**Into the Dataverse Hackathon,** First Place Team ($15,000)	*Ann Arbor, MI*
2019	**Engineering Research Symposium Scientific Visualization Award,** First Place	*Ann Arbor, MI*
2016	**Lextech Senior Design Most Marketable Project Award,** Recipient	*Champaign, IL*

Additional Skills

Languages	English (Native), Thai (Elementary Proficiency)
Computer	C/C++, Python, MATLAB, MAVLink, Make, Bash, LaTeX, ROS, PCB Design (EAGLE, DipTrace), Inventor, 3D Printing
Other	Proficient in Excel, PowerPoint, and Word. Working knowledge of Windows, MacOS, and Linux based systems.