

Joshua R. Bhagat Smith

☎ +1 501-499-2407 | ✉ joshsmith1005@gmail.com | 🏠 jbs023.github.io

Education

Oregon State University

PhD Robotics and AI

Corvallis, OR

2020-2024

University of Arkansas

MS Computer Science

Fayetteville, AR

2015-2017

University of Arkansas

BS Computer Engineering

Fayetteville, AR

2011-2015

Skills

Software/Tools: C++ | Python | C# | Java | ROS | Pytorch | Pyro | Docker | DDS | ZeroMQ | AWS | Protobuf | MATLAB

Technical Skills: Machine Learning | Bayesian Inference | Decision Making Under Uncertainty | Reinforcement Learning | Sensor Fusion | Optimization | Human-Robot Interaction | Multi-Robot Systems | Swarm Robotics

Soft Skills: Leadership | Cross-functional Collaboration | Effective Communication | Technical Writing | Critical Thinking | Time Management | Research Presentation | Mentoring

Professional Experience

AI & ML Lead Engineer, Peraton

2024-

- Autonomy R&D team. Our team investigated techniques to enable the interoperability of heterogeneous autonomy frameworks, with an emphasis on maritime, multi-robot systems and contested logistics applications.

Graduate Research Assistant, Oregon State University

2020-2024

- Led technical efforts for several projects focused on multi-robot systems and human-robot interaction.
- Adaptive Workload Estimation for Human-Robot Teams
 - Created an novel human state estimation system that leverages wearable sensors and Bayesian meta-learning to model the dynamics of cognitive workload.
 - Led a team of five researchers in training machine learning models, programming autonomous robots, and developing real-time physiological signal processing software.
- Transparent Management of Robot Swarm using Graph-based Dynamic Models
 - Developed human-swarm interface that allowed a single human to simultaneously control four robot swarms each containing 200 agents.
 - Investigated biologically inspired control algorithms and density estimation techniques for characterizing the behavior of adversarial agents, preventing them from impacting the swarm's decision making.
 - Enhanced transparency of the system by leveraging a heuristic prediction and a discrete-time Markov chain algorithm to inform users about the swarm's long-term behavior.
- Multi-Vehicle Management for Drone Delivery Systems
 - Collaborated to design and conduct human subject evaluations to establish appropriate performance parameters for human supervision of multiple uncrewed aircraft (i.e., 500+).

Senior Software Engineer, HERE Technologies

2017-2020

- Highly Autonomous Driving group. Our team built an automated, high-accuracy map to enable autonomous driving functionality from large scale vehicle sensor systems.
- Assisted in designing machine learning and statistical models of vehicle sensor data.
- Developed cloud infrastructure to scale data processing to analyze millions of kilometers daily.

Research Intern, NASA Langley Research Center

Summer 2016

- Research focused on UAV navigation methods, near the ground, that avoid fixed obstacles such as buildings, power lines and trees.