Joshua R. Bhagat Smith

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Education

Oregon State University — Corvallis, OR
PhD Robotics and AI (GPA: 3.9/4.0) — 2020-current

University of Arkansas — Fayetteville, AR
MS Computer Science (GPA: 3.8/4.0) — 2015-2017

University of Arkansas — Fayetteville, AR
BS Computer Engineering (GPA: 3.3/4.0) — 2011-2015

Professional Experience

Graduate Research Assistant/Lab Lead, Oregon State University — 2020-current

- Research Assistant
  - Created a novel system to estimate a human's workload for unknown tasks (i.e., under distribution shift).
  - Led a team of five researchers in building real-time physiological signal processing software, conducting human-subject studies, creating machine learning models, and programming autonomous robots.
  - Collaborated to design and conduct human subject evaluations to establish appropriate performance parameters for human supervision of multiple uncrewed aircraft operating beyond visual line of sight.
- Lab Lead
  - Designed, planned, and supervised undergraduate research projects.
  - Organized lab working groups where I taught technical concepts, software engineering tools and best practices, and skills for navigating research projects efficiently.

Senior Software Engineer, HERE Technologies — 2017-2020

- Scaled HD mapping algorithms for self-driving cars to update all of North America every 5 minutes.

Research Intern, NASA Langley Research Center — Summer 2016

- Developed clustering algorithms to generate geofences around electrical power lines.

Skills

- **Technical Skills:** Python | C++ | Pytorch | ROS | Pandas | Scipy/Numpy | Git | Machine Learning | Bayesian Inference | Distribution Shifts | Deep Learning | Reinforcement Learning | Experimental Design
- **Soft Skills**: Time Management | Effective Communication | Collaboration | Critical Thinking | Technical Writing | Research Presentation | Mentoring | Leadership

Selected Publications

J. Bhagat Smith, J.A. Adams. "Adaptive Workload Modeling for Unknown Tasks", ACM Transactions on Human-Robot Interaction, 2024. (In Preparation).

J. Bhagat Smith, J.A. Adams. "Towards Workload Estimation for Unknown Tasks: A Survey of Non-IID Machine Learning for HRI," in IEEE Transactions on Cognitive and Developmental Systems, 2024. (In Review).

F. Aderinto*, **J. Bhagat Smith***, M.R. Giolando, P. Baskaran, J.A. Adams, 'Improving Human-Robot Team Transparency with Eye-tracking based Situation Awareness Assessmen'," in *Companion of the ACM/IEEE International Conference on Human-Robot Interaction*, Late Breaking Report, USA, 2024 **[Best LBR Nominee]**

J. Bhagat Smith*, S.A Toribio*, P. Baskaran, J.A. Adams. "Uncertainty-Aware Visual Workload Estimation for Human-Robot Teams" in *Conference on Cognitive and Computational Aspects of Situation Management (CogSIMA)*, Philadelphia, PA, USA, 2023, pp. 1-8