Shushman Choudhury

LinkedIn| Website | Github | Scholar
shushman@cs.stanford.edu (Please email for longer CV)

INTERESTS

AI for Transportation/Logistics; Multi-Agent Optimization and Decision-Making; Robotic Path Planning and Routing

EDUCATION

STANFORD UNIVERSITY | Ph.D. in Computer Science | Sep 2017 - June 2021
Advisors - Mykel Kochenderfer and Jeannette Bohg
School of Engineering Graduate Fellowship 2017-18 | VMWare Graduate Fellowship 2020-21

CARNEGIE MELLON UNIVERSITY | M.S. in Robotics | Aug 2015 - Aug 2017
Advisor - Siddhartha Srinivasa

EXPERIENCE

LACUNA TECHNOLOGIES, INC. | Technical Lead, Research Team
Jul 2021 - Ongoing | Palo Alto, CA

- Led our in-house research team of data scientists and ML engineers in building AI-powered decision-making solutions for multiple major US cities and airports.
- Coordinated cross-functionally with engineering, product, and strategy teams to integrate technologies into existing systems and shape their future vision. Communicated critical insights and decisions to C-suite executives.
- Developed inference and optimization models for landside vehicle traffic at Seattle-Tacoma Airport; accurately estimated the efficacy of past congestion management strategies and created an algorithm to improve congestion by up to 300% (1, 2).
- Designed a comprehensive optimization framework for dynamic curbside allocation in downtown Seattle (1)
- Gave multiple invited industry/academic talks, e.g., PacTrans 2022, TESC 2022, UFL Quarterly 2022, CPS-IoT 2023.

STANFORD INTELLIGENT SYSTEMS LABORATORY (SISL) | PhD Researcher
Sep 2017 - Jun 2021 | Stanford, CA

- Award-winning research on hierarchical allocation, routing, and control algorithms for large multi-robot networks.
- Research featured in VentureBeat, BBC Digital Planet, and IEEE Spectrum (among others)

STANFORD LAW SCHOOL | Tech Policy Lab Member
Sep 2018 - Apr 2019 | Stanford, CA

- Advised INTERPOL [Article] , the Administrative Conference of the United States [Report], and the US federal goverment task force on the National Research Cloud [Article].

MICROSOFT RESEARCH REDMOND (MSR) | AI PhD Intern
Summer 2020 | Remote

- Multi-task deep reinforcement learning by computing and adapting shared representations.

CMU PERSONAL ROBOTICS LAB | Research Assistant
Aug 2015 – Aug 2017 | Pittsburgh, PA

- Efficient anytime motion planning for robot manipulation, validated on a bi-manual manipulator.

SELECTED PUBLICATIONS

Efficient Large Scale Multi-Drone Delivery Using Transit Networks S. Choudhury, K. Solovey, M. J. Kochenderfer, and M. Pavone. IEEE ICRA 2020 **Best Multi-Robot Paper Finalist** Journal of Artificial Intelligence Research (JAIR) 2021
Estimating Driver Response Rates to Variable Message Signage at Seattle-Tacoma International Airport S. Vasisht, S. Choudhury, N. Nazir, S. Zoepf, and C. Dowling. Transport Findings 2022
Optimal, centralized dynamic curbside parking space zoning N. Nazir, C. Dowling, S. Choudhury, S.Zoepf, K. Ma. IEEE Intelligent Transportation Systems Conference 2022
Dynamic Multi-Robot Task Allocation under Uncertainty and Temporal Constraints S. Choudhury, J. K. Gupta, M. J. Kochenderfer, D. Sadigh, and J. Bohg. Robotics Science and Systems (RSS) 2020. Springer Autonomous Robots (AuRO) 2022
A system for multi-step mobile manipulation: Architecture, algorithms, and experiments S. Srinivasa et al. International Symposium on Experimental Robotics (ISER) 2016.

LANGUAGES AND LIBRARIES

• Julia • C++ • Python •Pandas • PyMC • POMDPs.jl • Pytorch • OMPL • ROS