Shushman Choudhury

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

EDUCATION

STANFORD UNIVERSITY | Ph.D. in Computer Science | 2017 - 2021

CARNEGIE MELLON UNIVERSITY | M.S. in Robotics | 2015 - 2017

IIT KHARAGPUR | B.Tech in Computer Science and Engineering | 2011 - 2015

EXPERIENCE

LACUNA TECHNOLOGIES, INC. | Technical Lead, Research Team

Jul 2021 - Jul 2023 | Palo Alto, CA

- Led in-house research team of data scientists and ML engineers in building optimization and 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.
- **Led machine learning pipeline development** for the Fleet Conductor product, which optimized the last-block operations of delivery fleets in urban hotspots.
- **Bayesian inference** and **optimization** models for vehicle traffic at **Seattle-Tacoma Airport** ; accurately estimated the efficacy of 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 ARTIFICIAL INTELLIGENCE LABORATORY | PhD Researcher

Sep 2017 - Jun 2021 | Stanford, CA

- Developed state-of-the-art algorithms for hierarchical multi-agent allocation and routing.
- Best Overall Paper at AAMAS 2021 and Best Multi-Agent Finalist at ICRA 2020.
- Research featured in VentureBeat, BBC Digital Planet, and IEEE Spectrum

MICROSOFT RESEARCH REDMOND | AI PhD Intern

Summer 2020 | Remote

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

CARNEGIE MELLON PERSONAL ROBOTICS LAB | MS Researcher

Aug 2015 – Aug 2017 | Pittsburgh, PA

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

SELECTED PUBLICATIONS

Efficient Large Scale Multi-Drone Delivery Using Transit Networks
International Conference on Robotics and Automation 2020 **Best Multi-Robot Finalist** Journal of AI Research 2021
Scalable Anytime Planning for Multi-Agent MDPs
Autonomous Agents and Multi-Agent Systems 2021 **Best Paper** Journal of AI Research 2022
Dynamic Multi-Robot Task Allocation under Uncertainty and Temporal Constraints
Robotics Science and Systems (RSS) 2020 Springer Autonomous Robots (AuRO) 2022
Estimating Driver Response Rates to Variable Message Signage at Seattle-Tacoma International Airport
Transport Findings Journal 2022
Optimal, Centralized Dynamic Curbside Parking Space Zoning
IEEE Intelligent Transportation Systems Conference 2022
Coordinated Multi-Agent Pathfinding for Drones and Trucks over Road Networks
Autonomous Agents and Multi-Agent Systems 2022
Pareto-optimal search over configuration space beliefs for anytime motion planning
Intelligent Robots and Systems (IROS) 2016

LANGUAGES/TOOLS/TECHNIQUES

• Python (5+ yrs) • C++ (5+ yrs) • Julia (5 yrs) • Python-MIP •Pandas • PyMC • Scikit-Learn • Pytorch • AWS
• Hierarchical Multi-Agent Methods • Decision-Making under Uncertainty • Combinatorial Optimization • Heuristic Search
• Statistical Inference • Geospatial Analysis