ARASH ASGHARIVASKASI

CONTACT INFORMATION

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University of California, San Diego
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EDUCATION

PhD., Electrical and Computer Engineering 2018 - Present
University of California, San Diego, USA
Advisor: Nikolay Atanasov

M.S., Electrical and Computer Engineering 2018 - 2021
University of California, San Diego, USA GPA: 3.88/4

B.S., Electrical Engineering (with Minor in Economics) 2013 - 2018
Sharif University of Technology, Tehran, Iran GPA: 3.79/4

RESEARCH INTERESTS

- Simultaneous Localization and Mapping (SLAM); Novel Environment Representations; Bayesian Techniques for Joint Inference of Geometry and Semantics; Sensor Fusion for SLAM
- Autonomous Robot Exploration; Perception-aware Planning and Control; Active SLAM; Model-based and Model-free Active Target Tracking
- Multi-robot Systems; Distributed Estimation and Planning; Decentralized Riemannian Optimization
- **Relevant fields**: Robotics, Machine Learning, Computer Vision, Distributed Optimization, Security

INDUSTRY EXPERIENCE

- **Trainee**: Brain Corporation, San Diego, USA Spring 2019
- **Intern**: Convex Research Group, Hong Kong University of Science and Technology, Kowloon, Hong Kong SAR Summer 2017
- **Trainee**: Ericsson, Tehran, Iran Fall 2016

RESEARCH EXPERIENCE

- **Graduate Student Researcher**: Existential Robotics Laboratory, University of California, San Diego, USA Fall 2018 - Present
- **Intern**: Convex Research Group, Hong Kong University of Science and Technology, Kowloon, Hong Kong SAR Summer 2017

JOURNAL ARTICLES

- **A. Asgharivaskasi**, F. Girke, and N. Atanasov, "Riemannian Optimization for Active Mapping with Robot Teams," submitted to IEEE Transactions on Robotics (T-RO), 2024
- **A. Asgharivaskasi**, N. Atanasov, "Semantic OcTree Mapping and Shannon Mutual Information Computation for Robot Exploration," in IEEE Transactions on Robotics (T-RO), 2023

CONFERENCE PROCEEDINGS

- Z. Dai, **A. Asgharivaskasi**, T. Duong, S. Lin, M. Tzes, G. Pappas, and N. Atanasov, "Optimal Scene Graph Planning with Large Language Model Guidance," in IEEE International Conference on Robotics and Automation (ICRA), 2024
- P. Yang, S. Koga, **A. Asgharivaskasi**, and N. Atanasov, "Policy Learning for Active Target Tracking over Continuous SE (3) Trajectories," in Learning for Dynamics & Control Conference (L4DC), 2023
- D. T. Larsson, **A. Asgharivaskasi**, J. Lim, N. Atanasov, and P. Tsiotras, "Information-theoretic Abstraction of Semantic Octree Models for Integrated Perception and Planning," in IEEE International Conference on Robotics and Automation (ICRA), 2023
- P. Yang, Y. Liu, S. Koga, **A. Asgharivaskasi**, and N. Atanasov, "Learning Continuous Control Policies for Information-Theoretic Active Perception," in IEEE International Conference on Robotics and Automation (ICRA), 2023
- **A. Asgharivaskasi**, S. Koga, and N. Atanasov, "Active Mapping via Gradient Ascent Optimization of Shannon Mutual Information over Continuous *SE(3)* Trajectories," in IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2022
- S. Koga, **A. Asgharivaskasi**, and N. Atanasov, "Active SLAM over Continuous Trajectory and Control: A Covariance-Feedback Approach," in American Control Conference (ACC), 2022
- S. Koga, **A. Asgharivaskasi**, and N. Atanasov, "Active Exploration and Mapping via Iterative Covariance Regulation over Continuous SE(3) Trajectories," in IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2021
- **A. Asgharivaskasi** and N. Atanasov, "Active Bayesian Multi-class Mapping from Range and Semantic Segmentation Observations," in IEEE International Conference on Robotics and Automation (ICRA), 2021

WORKSHOP PAPERS

- **A. Asgharivaskasi** and N. Atanasov, "Distributed Optimization with Consensus Constraint for Multi-Robot Semantic Octree Mapping," in Workshop on Collaborative Perception and Learning (CoPerception) at ICRA, 2023

PROFESSIONAL ACTIVITIES

Workshop Organization:

- Co-organizer and lecturer, Virtual Workshop on "Robotics Algorithms in Python," UCSD HKN chapter and SDSU IEEE chapter, March 2021.

Reviewer:

- **Journals**: IEEE Transactions on Robotics (T-RO), Elsevier Artificial Intelligence, IEEE Robotics and Automation Letters (RA-L), Springer Autonomous Robots, IEEE Systems Journal (ISJ), IEEE Transactions on Automation Science and Engineering (T-ASE)
- **Conferences**: Robotics: Science and Systems (RSS), IEEE International Conference on Robotics and Automation (ICRA), American Control Conference (ACC), IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), IEEE International Symposium on Multi-Robot and Multi-Agent Systems (MRS)

TEACHING EXPERIENCE

- **Robotics Mentor**: Existential Robotics Laboratory, UC San Diego Summer 2019 - Present
- **Teaching Assistant**: ECE276A: Sensing and Estimation in Robotics, UC San Diego Winter 2022
- **Teaching Assistant**: ECE276A: Sensing and Estimation in Robotics, UC San Diego Winter 2021
- **Teaching Assistant**: ECE276A: Sensing and Estimation in Robotics, UC San Diego Winter 2020
- **Teaching Assistant**: Computer Vision and Ambient Intelligence, Tehran, Iran Fall 2017
- **Teaching Assistant**: Communication Systems, Tehran, Iran Fall 2017
- **Teaching Assistant**: Artificial Intelligence and Biological Computations, Tehran, Iran Spring 2017
- **Teaching Assistant**: Multi-Camera Vision, Sharif University of Technology, Tehran, Iran Spring 2017
- **Teaching Assistant**: Computer Vision and Ambient Intelligence, Sharif University of Technology, Tehran, Iran Fall 2016
- **Teaching Assistant**: Signals and Systems, Sharif University of Technology, Tehran, Iran Spring 2016
- **Teaching Assistant**: Engineering Mathematics, Sharif University of Technology, Tehran, Iran Fall 2015