Shadi Haddad

PhD student · Applied Mathematics
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Education

University of California, Santa Cruz — Santa Cruz, CA
PhD in Applied Mathematics (Ongoing) — *Spring 2023 (Expected)*
- Chancellors's Fellowship (2019)

University of Tehran, College of Mechanical Engineering — Tehran, Iran
M.Sc. in Mechanical Engineering — *January 2018*
- Thesis: "Second Order Sliding Mode Tracking Control of a Piezoelectric Tapered Micro Actuator with Axial Deflection and System Nonlinearity"
- Full Tuition Merit Scholarship

Chamran University of Ahvaz, College of Mechanical Engineering — Ahvaz, Iran
B.Sc. in Mechanical Engineering — *July 2015*
- Full Tuition Merit Scholarship

Publications

Prediction and Optimal Feedback Steering of Probability Density Functions for Safe Automated Driving — IEEE Control Systems Letters, *2020*
Shadi Haddad, Kenneth F Caluya, Abhishek Halder, Baljeet Singh

Density-Based Stochastic Reachability Computation for Occupancy Prediction in Automated Driving — arXiv:2006.12581, *2020*
Shadi Haddad, Abhishek Halder, and Baljeet Singh

The Convex Geometry of Integrator Reach Sets — American Control Conference, *2020*
Shadi Haddad, Abhishek Halder

Observer Based Fault Reconstruction Schemes Using Terminal Sliding Modes — International Journal of Control, *2018*
M. Mousavi, M. Rahnavard, S. Haddad

Analytical Study on Nonlinear 3D Coupled Deformations of Tapered FG Micro-beams Accounting for Size Effects — Iranian Journal of Science and Technology, *2018*
S. Haddad, M. Baghani

Talks and Presentations

3rd NorCal Control Workshop — Virtual, *2021*
Conference Paper and Talk
- "The Convex Geometry of Integrator Reach Sets"

American Control Conference — Virtual, *2020*
Conference Paper and Talk
- "The Convex Geometry of Integrator Reach Sets"

Bay Area Robotics Symposium — University of California at Berkeley, *2019*
Spotlight Talk and Poster Presentation
- "Understanding the Geometry of Integrator Reach Sets for Robotics Applications"

Instructional Experience

Mathematical Methods for Engineering — UC Santa Cruz, *Winter 2021*
Teaching Assistant

Honors & Awards

2020	**Student Travel Award**, American Control Conference	*Denver, CO (Virtual)*
2019	**Chancellor's Fellowship**, University of California at Santa Cruz	*Santa Cruz, CA*
2015	**Full Tuition Merit Scholarship**, University of Tehran	*Tehran, Iran*
2011	**Full Tuition Merit Scholarship**, Chamran University of Ahvaz	*Ahvaz, Iran*

Selected Graduate Courses

2020	**Machine Learning**, UC Santa Cruz	*A+*
2020	**Convex Optimization**, UC Santa Cruz	*A+*
2020	**Nonlinear Control Theory**, UC Santa Cruz	*A*

Skills

Programming	MATLAB and Simulink, Python, MAPLE, C++
Engineering and Modelling	SOLIDWORKS
Simulation and Analysis	ANSYS, ABAQUS
Grid Generation	ANSYS Meshing
Technical Writing and Documentation	Latex, Jupyter Notebook, Keynote