**Masoumeh Ghanbarpour Mamaghani**

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**Education**

Graduate Student in Electrical and Computer Engineering

University of California Santa Cruz, CA

**M.Sc.** in Communication Engineering

RWTH-Aachen, Aachen, Germany

Thesis: Development of a Model Predictive Control Concept for Vehicle Collision Avoidance

**B.Sc.** in Electrical Engineering

University of Tehran, Tehran, Iran

**B.Sc.** in Applied Mathematics

University of science and Technology, Tehran, Iran

**Research Interests**

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| * Safety of dynamical System | * Robotics |
| * Stochastic Systems | * Machine Learning |
| * Convex optimization | * Reinforcement Learning |

**Publications**

* *A Converse Robust-Safety Theorem for Differential Inclusions (Submitted, IEEE Transactions on Automatic Control)*
* *Sufficient conditions for robust safety in differential inclusions using barrier functions (Submitted, Automatica)*
* *On the Feasibility and Continuity of Feedback Controllers Defined by Multiple Control Barrier Functions for Constrained Differential Inclusions (ACC2022)*
* *Barrier Functions for Robust Safety in Differential Inclusions, Part II: The Converse Problem (CDC 2021)*
* *Barrier Functions for Robust Safety in Differential Inclusions, Part I: Sufficient Conditions (CDC 2021)*
* *A Duality Approach to Set Invariance and Safety for Nonlinear Systems (CDC 2021)*
* *Centralized non-convex model predictive control for cooperative collision avoidance of networked vehicles (ISIC)*

**Research Experience**

• Production Engineering of E-Mobility Components (PEM), RWTH Aachen University, Aachen, Germany

Project: Control & Indoor Navigation for a Quadcopter

• Institute of Automatic Control (IRT), RWTH Aachen University, Aachen, Germany

Project: Pressure Estimation Using Structural Vibration Measurements of Diesel Engine

• Fraunhofer Institute for Production Technology (IPT), Aachen, Germany

Project: Accurate Wave front-based Active Alignment of Multi-element Optical System

• Institute of Automatic Control (IRT), RWTH Aachen University, Aachen, Germany

Project: Control Systems and Specifically Model-based Predictive Control (MPC)

System Identification: Neural Networks & Local Linear Model Tree (LOLIMOT)

Automatic Control and Dynamic Optimization (Acado) Toolkit

• Mobile Communication Company of Iran, Tehran, Iran

**Teaching Assistant at UCSC**

Applied Discrete Mathematics,

Probability and Statistics for Engineers,

Computer Systems and C Programming

Digital Signal Processing

Introduction to Electronic Circuits

**Computer Skills**

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| * MATLAB * C | * Python * R |
| * C++ | * Latex |
| • Microsoft Office |  |
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**Language Skills**

* English
* Farsi (Persian)
* German