

Mahdi Amouzadi

School of Engineering and Informatics, University of Sussex, Brighton, UK

Email: M.Amouzadi@sussex.ac.uk Mobile: +447533500567

Profile

I am a research assistant at the University of Sussex, where I recently completed my PhD in the field of control theory and optimisation. I am focused on designing efficient and safe planning algorithms, control strategies and estimation for single and multiple autonomous agents in complex environments. Recently, I've started a research assistant role at the Department of Engineering to design and simulate novel cascading failures for interdependent multi-layer infrastructure networks. My goal is to pursue a career in line with my research interests in a dynamic environment including pioneering companies and/or academia. My area of interests are Optimisation-based Algorithms; Optimal Control Problem; Nonlinear Model Predictive Control; Real-time Optimisation; Reinforcement Learning; Robotics and Automation; System Dynamics and Modelling; Connected and Autonomous Vehicles.

Education

University of Sussex, Brighton, UK

PhD in Engineering, Sep. 2019 – Feb 2023

- Thesis: "Lane-Free Crossing of Connected and Autonomous Vehicles through Intersections"

University of Sussex, Brighton, UK

Undergraduate bachelor's in Electrical and Electronics Engineering, Sep. 2016 - June. 2019

- Grade: 1.1
- Final project: "Design and Fabrication of a Capacitive Body Network Communication System"

Work Experience

Research Assistant, University of Sussex, UK (Jan 2023 - May 2023)

- Design and simulation of cascading failures in interdependent power system network and telecommunication network using MATPOWER toolkit
- Working with multilayer graphs

PhD Researcher, University of Sussex, UK (Sep 2019 - Feb 2023)

- Developing path planning algorithms for single and cooperative autonomous vehicles
- Working with Optimal Control Problem (OCP) and Model Predictive Control (MPC)
- Numerical solving of optimization problems

Associate Tutor, University of Sussex, Brighton, UK, Sep 2019 – Present

- Delivered the laboratory and/or workshop sessions of the following modules:
 - Autonomous Vehicles
 - Engine Technology and Vehicle Technology
 - Electromechanics
 - Electromagnetism and Introduction to Electrical Machines
 - Electronic Circuit & Systems Design

Embedded System Engineer, Iran Digital Smart Homes, Esfahan, Iran (summers of 2016, 17,18)

- Designed and manufactured electronic circuits according to client's requirements.
- Analysed and double checked all systems before handing them to costumers.
- Worked both in groups and individually to plan for each design.

Honors and Awards

- Awarded with the School of Engineering and Informatics' Fully-Funded Scholarship by University of Sussex, September 2019.
- Awarded with the School of Engineering, 45% Scholarship, University of Sussex, September 2016.
- Ranked #2 in Elisa 2560 robot competition at University of Sussex, May 2017.
- Awarded with outstanding achievement for the first year of university, University of Sussex, June 2017.

Publications

- M. Amouzadi, M.O Orisatoki, A.M Dizqah, (2022). "Optimal Lane-Free Crossing of CAVs through Intersections", IEEE Transactions on Vehicular Technology. doi: 10.1109/TVT.2022.3207054.
- M. Amouzadi, M.O Orisatoki, A.M Dizqah, (2022). "Capacity Analysis of the Intersections when CAVs Crossing in a Collaborative and Lane-Free Order", MDPI Journal of Future Transportation, 2(3) 698–710. doi: 10.3390/futuretransp2030039.
- M. Amouzadi, M.O Orisatoki, A.M Dizqah, (2022). "Lane-Free Crossing of CAVs through Intersections as a Minimum-Time Optimal Control Problem", 11th IFAC Symposium on Intelligent Autonomous Vehicles 55(14), 28–33. doi: 10.1016/j.ifacol.2022.07.578.

Skills

- **Programming Language:** MATLAB and SIMULINK, Python and C/C++
- **Toolkits:** CasADi, ACADO, AMPLE, YALMIP and MATPOWER
- **Ssftware:** Gazebo, Arduino, Multisim Blue, Quanser
- **Operating Systems:** ROS, Linux, Windows (all kinds), iOS
- **Others:** GitHub, LaTeX, Microsoft Office, public speaking

Languages

- Persian: Native proficiency
- English: Full Professional proficiency
- Arabic: Intermediate

Memberships

- Member of IEEE since Oct 2022
- Member of SVecLab at University of Sussex since Sep 2019
- Member of STCS at University of Sussex: Sep 2017 to Sep 2019
- Member of formula design at University of Sussex: Sep 2017 to Feb 2019

References available upon request