Mahdi Amouzadi

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Profile

I am a Ph.D. candidate at the SVecLab at the University of Sussex. My research lies at the intersection of control theory and optimization. I am focused on designing efficient and safe planning algorithms, control strategies and estimation for single and multiple autonomous agents in complex environments. After obtaining my Doctoral degree, my ultimate 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 - present

- Research student at Smart Vehicles Control Laboratory (SVecLab)

University of Sussex, Brighton, UK

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

- Grade: 1.1
- Final project: Intra-body Communication "Capacitive Body Network Communication"

Bellerbys College, Brighton, UK

Foundation degree in engineering, Sep. 2015 - June. 2016

- Grade: 78% (Ranked 2rd among 30 students)

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.

Work Experience

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

- Assisted Dr Arash M. Dizqah, Dr M. Oner and Dr R. Aviles-Espinosa in 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.

Formula Design Researcher, University of Sussex, UK (July 2018 - August 2018)

- Worked with fellow students on the research team and analysed new motoring regulations as well as applying core efficient solutions.
- Analysing data and statistics from the designs.

Research Experience & Notable Projects

University of Sussex, Brighton, UK

Researcher, Sep. 2018 – Present

- Research on "Control Strategies for Path Planning of Connected and Autonomous Vehicles (CAVs)" under the supervision of Dr Arash M. Dizqah. Sep. 2019 – Present
- Researched and performed experimental validation on "A Capacitive Body Network System to Transfer Music Signals through Human Body" under the supervision of Dr N. Munzenrieder. Sep. 2018 – Jun. 2019
- Conducted research on "Pitch Angle Control for Wind Turbine Rotor" under the supervision of Prof Julian Dunne. Sep. 2018 – Dec 2018

Skills

Programming Language

- MATLAB and SIMULINK
- C/C++
- Python

Toolkits

- CasADi
- AMPLE
- ACADO
- YALMIP

Software

- Multisim Blue
- Quanser
- Arduino

Operating Systems

- Windows (all kinds)
- Mac OS
- Linux
- Android
- iOS

Others

- GitHub
- LaTeX
- Mathematical Modelling
- Public Speaking
- Microsoft Office

Languages

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

Memberships:

- Member of IEEE
- Member of SVecLab at University of Sussex
- 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

Activities

- University of Sussex Volleyball team member (from September 2017 until present).
- Swimming
- Body building
- Reading Inspirational Book

References available upon request