Mahdi Amouzadi

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

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Research Interests

- Optimal Control Problem
- Connected and Autonomous Vehicles
- Nonlinear Model Predictive Control
- Optimisation-based Algorithms
- Robotics and Automation
- System dynamics and modelling
- Reinforcement Learning
- Real-time Optimisation

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

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.
- Selected as a Talented Student, Bellerbys College, December 2015.

Publications and Presentations

- M. Amouzadi, M.O Orisatoki, A.M Dizqah, (2022). "Optimal Lane-Free Crossing of CAVs through Intersections", IEEE Transactions on Vehicular Technology - Under Review
- M. Amouzadi, M.O Orisatoki, A.M Dizqah, (2022). "Capacity Analysis of the Intersections when CAVs Crossing in a Collaborative and Lane-Free Order", IEEE Transactions on Intelligent Transportation Systems - Under Review

- 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 - Under Review
- “Field-Effect Transistors and logic circuits”. Report prepared for Electronic Circuits & System Design module, University of Sussex Brighton, UK, November 2017.
- Capacitive Body Network Communication”. Final year project prepared for Sensor Technology Centre Sussex (STCS), University of Sussex, Brighton, UK 2019.
- “Elisa Robot Path Tracking”. Report prepared for Embedded System module, University of Sussex, Brighton, UK May 2017.

Research Experience & Notable Projects

University of Sussex, Brighton, UK

Researcher, Sep. 2019 – Present

- Research on “Control Strategies for Path Planning of Connected and Autonomous Vehicles (CAVs) at Intersections” under the supervision of Dr. Arash M. Dizqah.

Researcher, Sep. 2018 – Jun. 2019

- 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.

Researcher, Sep. 2018 – Dec 2018

- Conducted researched on “Pitch Angle Control for Wind Turbine Rotor” under the supervision of Prof. Julian Dunne.

Teaching Experience

University of Sussex, Brighton, UK

- Associate Tutor, Sep 2019 – Present
    - Assisted Dr Arash M. Dizqah in "Engine Technology" module, ran weekly lab sessions (2019-2021).
    - Assisted Dr Arash M. Dizqah in “Vehicle Technology” module, ran weekly lab sessions (2020-2022).
    - Assisted Dr M. Oner in “Electromechanics” module, ran weekly workshop sessions (2021-2022).
    - Assisted Dr M. Oner in “Electromagnetism and Introduction to Electrical Machines” module, ran weekly workshop sessions (2021-2022).
    - Assisted Dr Arash M. Dizqah in “Autonomous Vehicle” module, ran weekly lab sessions (2020-2022).
    - Assisted Dr R. Aviles-Espinosa in “Electronic Circuit & Systems Design” module, ran weekly lab sessions (2020-2021).

Work Experience

Iran Digital Smart Homes, Esfahan, Iran (three continuous summers of 2016, 17, 18)

- Worked as an embedded system engineer.
- 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.

Transition mentor, University of Sussex, UK (September 2018 - May 2019)

- Organized weekly sessions for 10 undergraduate students and provided peer support with their studies.
- Responsible for preparing the sessions and providing weekly reports to the department senior mentor.
- Communicated with variety of students effectively.

Skills

Programming Language

- MATLAB and Simulink
- Python
- C/C++

Toolkits

- CasADi
- AMPLE
- ACADO
- YALMIP

Software

- Multisim Blue
- Quanser
- Arduino
- familiar with IPSA 2.7
- PSS explore

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 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
- President of Iranian Society at University of Sussex: Sep 2017 to Sep 2018

Activities

- University of Sussex Volleyball team member (from September 2017 until present).
- Swimming
- Listening to music
- Physical Fitness
- Reading Inspirational Books