Mohammad Javad Zallaghi

PhD Candidate in Electrical Engineering: Robotics and Control
E-mail: Mohammad.Javad.Zallaghi@vub.be   Phone number: +32 471 19 45 11
Country of Residence: **Belgium**   Birthday: 16 Jan 1998   Marital status: Single

mjavadzallaghi.github.io   LinkedIn   GitHub   Google Scholar

Education

- **PhD Candidate in Electrical Engineering** [2024 Sep – NOW]
  Vrije Universiteit Brussel (VUB), Brussels, Belgium
  Thesis: Learning-based Perception-Action Control for Provably Safe Aerial Robot Navigation
  Supervisors: Prof. Bram Vanderborght, Prof. Adrian Munteanu, and Dr. Bryan Convens

- **MSc in Mechanical Engineering – Applied Mechanics** [2019 Sep – 2022 Mar]
  Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran
  Thesis: Design and Development of a Robotic ExoSuit for Upper Limb, **Thesis grade**: 20 out of 20
  Supervisors: Dr. Afshin Taghvaeipour, and Dr. Hamed Ghafarirad

- **BSc in Mechanical Engineering** [2015 Sep – 2019 Sep]
  Khajeh Nasir Toosi University of Technology, Tehran, Iran
  Thesis: Design and Fabrication of a Three-Wheel Robot with Performance Control, **Thesis grade**: 20 out of 20
  Supervisors: Prof. S. Ali A. Moosavian

Research and Professional Roles

- **PhD Researcher in Robotics** [2024 – NOW]
  Autonomous Navigation of Aerial Robots at BruBotics, R&MM, and ETRO Departments, Brussels, Belgium
- **Autonomous Vehicle and ADAS Algorithm Engineer** [2023 – 2024]
  Decision, Planning, and Control Algorithm Engineer for Mobile Robots and ADAS
- **Research and Teaching Assistant** [2019-2022]
  Amirkabir University of Technology, Multi-body Systems Lab and Intelligent Systems Research Centre
- **Research Assistant** [2018-2019]
  Advanced Robotics & Automated Systems Lab (ARAS) in the K. N. Toosi University of Technology

Journal Papers

- **Zallaghi MJ**, Ghafarirad H, Taghvaeipour A. Direct model parameter identification of twisted string actuators using Nelder-Mead simplex method. *Proceedings of the Institution of Mechanical Engineers, Part C*. 2024;238(15):7747-7759. doi:10.1177/09544062241233923

Selected Projects

- SPEAR ROBOTICS [EUROPEAN PROJECT]: Spatial Perception and Embodied Autonomy Research Project, contribute to Autonomous Navigation Policies for Robotics.

Skills and Courses

- **Robot software development**: C/C++, ROS/ROS 2, Gazebo, Webots, Python, PyTorch, Matlab/Simulink
- **Robot hardware development**: Nvidia Jetson Orin Computers, RealSense, ZED and OAK stereo cameras, 2D/3D LiDARs, Pixhawk autopilots, Holybro aerial robots, Dynamixel servos, Arduino and Raspberry Pi, CAD design with SolidWorks and Inventor
- **Reinforcement learning for robotics**: Nvidia Isaac Gym, Nvidia Isaac Sim, Aerial Gym, rl_games, Isaac Envs
- **Robotic courses:** Advanced Robotics, Reinforcement Learning, Dynamics of Multi-body System, Advanced Dynamics, Nonlinear Control, Adaptive Control, Artificial Neural Networks, Advanced Mathematics, Image Processing, Computational Intelligence and Fuzzy Systems

Honors

- IROS 2023 Humanoid Robot Competition: *MechaCheetahs*, **Gold Medal**, Champion of the competition, ranked 1st place: [Certificate]
- ICRA 2023 Humanoid Robot Competition: Reached the semifinals and placed within the top four: [Certificate]