Mahdis Bisheban

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Education

Ph.D. student in Mechanical & Aerospace Engineering (Robotics, Mechatronics and Controls)
The George Washington University (2014-present)
- Advisor: Dr. Taeyoung Lee (Aug 2015-Present), Dr. Azim Eskandarian (Jan 2014-Jul. 2015),
- GPA: 3.94 (Out of 4)
- Courses: Systems Dynamics Modeling and Control, Electromechanical Control System, Theory of Vibration, Analytical Methods in Engineering II

M.Sc. in Mechanical Engineering (Applied Design)
The University of Guilan (2009-2011)
- Advisors: Dr. Ahmad Bagheri, Dr. Nader Nariman-zadeh
- Thesis: Pareto design of linear state feedback controllers using multi-   objective adaptive particle swarm optimization
- Thesis grade: 19.38 (Out of 20)
- Average grade: 17.16 (Out of 20)
- Relevant courses: Advanced Automatic Control, Advanced Dynamics, Kinematics of Manipulators
- Other courses: Impact Mechanics 1, Elasticity, Continuum Mechanics 1 (Design), Seminar, Advanced Mathematics 1, Advanced Numerical Analysis

B.Sc. in Mechanical Engineering (Heat and Fluids)
The University of Guilan (2005-2009)
- Advisors: Dr. Mohammad Naghash
- Senior Project: Study behavior of water network of Langroud using GIS
- Senior Project grade: 20 (Out of 20)
- Average grade: 16.98 (Out of 20)
- Honors: First ranked among 56 students in the 2008-2009 academic year
  Second ranked among 56 students in the four academic years
  Received two scholarships of the talented student
- Award: The award of Brilliant Talent (2009)

Research interests
- Control
- Dynamics
- Robotics
- Modeling and Simulation
- Optimization (Constrained, Single-Objective, and Multi-Objective)
- Optimum Design
- Visual Behavior of Human Drivers
- Eye Tracking
- Image Processing

Experience

Graduate research assistant under the supervision of Dr. Azim Eskandarian in the Driving Simulator Laboratory, the Center for Intelligent Systems Research (CISR), the George Washington University (2014-2015)

- Studied visual driver models
- Developed a system to correlate output data of eye tracking system (faceLab by Seeing Machines) and the car simulator (STISIM Drive and VDANL Drive by Systems Technology, Inc). The system provides a video of the driver's eye view overlaid with gaze and head intersection data.

Internship under the supervision of Dr. Mohammad Naghash in the Arian Engineering Company, Rasht, Iran
- Studied behavior of water network system of Langured (a city in Guilan, Iran) using GIS (summer 2009)
- Created the 3D virtual city of Golasr (a town in Rasht, Guilan, Iran) (summer 2008)

Teaching Experience:

The University of Guilan, the Department of Mechanical Engineering
- **Teaching assistant:**
  - Dynamics (fall 2009)
  - Mechanical Vibrations(spring 2010)
  - Automatic Control (spring and fall 2010)
- **Instructor:**
  - Hydraulics Laboratory (spring and fall 2010, spring and fall 2011)

The University of Guilan, the Department of Chemical Engineering
- **Teaching assistant:**
  - Statics (spring2011)
  - Mechanics of Materials (spring2011)
- **Instructor:**
  - Hydraulics Laboratory (spring and fall 2010, spring and fall 2011)

Memberships
- Iranian Organization For Engineering Order of Building
- Young Researchers Club, Bandar Anzali branch, Islamic Azad University

Software experience
- Programming Languages: C++, MATLAB
- MATLAB Toolboxes:
  - Image Processing
  - Computer Vision System
  - Camera Calibration
  - Control System
- faceLab (eye tracking software)
- STISIM Drive and VDANL Drive (car simulator software)
- CAD: AutoCAD, Water CAD, Sewer CAD
- SolidWorks
- CATIA
- Arc GIS
- EPANET
- Microsoft Office, LaTeX

Languages
- **Farsi** – native language
- **English** - IELTS (academic) overall band score: 6.5
- **Arabic** – basic

Publications

Journal Papers
- Mahmoodabadi, Mohammad Javad, Ahmad Bagheri, S. Arabani Mostaghim, and M. Bisheban. "Simulation of stability using Java application for Pareto design of controllers based on a new multi-objective particle swarm optimization." Mathematical and Computer Modelling 54, no. 5 (2011): 1584-1607.

- Mahmoodabadi, M. J., and M. Bisheban. "An online optimal linear state feedback controller based on MLS approximations and a novel straightforward PSO algorithm." Transactions of the Institute of Measurement and Control (2014): 0142331214537014.
- Bisheban, M., M. J. Mahmoodabadi, and A. Bagheri. "Partitioned Particle Swarm Optimization." Journal of Applied & Computational Mathematics (2013).

Conference Papers
- M. Bisheban, A. Bagheri, M. Bisheban, Constrained optimization of an I-beam using game theory and modified particle swarm, 20th Annual International Conference on Mechanical Engineering-ISME2012,16-18 May, 2012, School of Mechanical Eng., Shiraz University, Shiraz, Iran.
- M. bisheban, M.J. Mahmoodabadi, J. Rezapour, Globally convergent sliding mode and feedback linearization controllers for trajectory tracking with bounded disturbance, the first regional conference of mechanical engineering, MCliau 2011, Azad University, Lauhijan, Iran.
- A. Bagheri, N. Nariman-Zadeh, M. Bisheban, M.J. Mahmoodabadi, Design of a gearbox using particle swarm optimization with dynamic coefficients, 19th Annual International Conference on Mechanical Engineering-ISME2011, 10-12 May, 2011, School of Mechanical Eng., Birjand University, Birjand, Iran, (In Farsi).
- M. Bisheban, A. Bagheri, The optimal linear state feedback controller of a ball and beam system using particle swarm optimization and genetic algorithm, the annual conference of research, 10-13 December 2011, University of Guilan, Rasht, Iran, (In Farsi).
- M. Bisheban, A. Bagheri, The optimal Linear quadratic controller using particle swarm and game theory, the annual conference of research, 10-13 December 2011, University of Guilan, Rasht, Iran, (In Farsi).

Submitted paper
- M.J. Mahmoodabadi, M. Bisheban, Pareto Optimal Design of Decoupled Sliding Mode Control based on a new Multi-objective Particle Swarm Optimization Algorithm. Submitted to the Amirkabir International Journal of Modeling, Identification, Simulation & Control.