EHSAN AHMADI
Tehran, Iran

PERSONAL INFORMATION

Date of Birth: July/31/1994   **E-mail:** ehsan.ahmadi94@student.sharif.edu

Telephone: +98-938-310-4442   **Website**: https://ehsan-ahmadi.wixsite.com/roboticist

EDUCATION

M.Sc. – Mechanical Engineering, Applied Design,   **2016-Present**
Control and Automation Field, Sharif University of Technology, Iran

- Sharif University of Technology is the first rank technical university in Iran (QS).
- **GPA:** 17.19/20

B.Sc. – Mechanical Engineering, University of Tehran, Iran   **2012-2016**

- University of Tehran is the pre-eminent national university of Iran.
- **GPA:** 16.79/20 **(3.57/4)**
- **Senior year GPA:** 18.10/20 **(3.90/4)**

Standard Tests

- **TOEFL iBT:**   103/120
- **GRE General:**   314/340

RSEARCH AND CAREER EXPERIENCE

Graduate Research Assistant – CEDRA, Sharif University of Technology   **2016-Present**

- Developing software packages needed to operate Arash Social Robot (utilizing ROS)
- Arash's planar motion control utilizing Simultaneous Localization and Mapping

Visiting Researcher – University of Trieste   **April -Sept. 2018**

- Working on painter robot project funded and supervised by Dr. Paolo Gallina

Mechanical Engineering Intern - Moshanir Co., Tehran, Iran   **Summer 2015**

- Moshanir is the biggest consulting corporation in power engineering in Iran.

Mechanical Engineering Intern - Mapna Turbine Manufacturing Co., Iran   **Summer 2014**

- Mapna is an international player in the turbine industry.

RESEARCH INTERESTS

- SLAM and Mobile Robotics
    - I am especially interested in researching self-driving cars.
- Artificial Intelligence (Deep Learning, and Reinforcement Learning)
- Social Robotics
- Computer Vision
- Control Theory
- State Estimation

TEACHING EXPERIENCE

Workshop Lecturer – 2-day ROS introductory workshop held on Yazd University   **Fall 2017**

Teacher Assistant – Dynamics, Sharif University of Technology   **Fall 2017**

Teacher Assistant – Computational Fluid Dynamics, University of Tehran   **Fall 2016 - Fall 2017**

AWARDS AND HONORS

- University of Trieste 3600€ study award for master's degree students   **Summer 2018**

- Sharif University of Technology Scholarship   **2016-Present**
  o Graduate Program
- Ranked 16th in Nationwide Universities Entrance Exam for MSc.   **2016**
  among more than 13,000 participants, Iran.
- University of Tehran Scholarship   **2012-2016**
  o Undergraduate Program
- Ranked 216th in Nationwide Universities Entrance Exam   **2012**
  among more than 100,000 participants, Iran.
- Olympiad in Mathematics   **2010 & 2011**
  o 2nd round qualified

PUBLICATIONS

- Meghdari, Ali, Azadeh Shariati, Minoo Alemi, Gholamreza R. Vossoughi, Abdollah Eydi, **Ehsan Ahmadi**, Behrad Mozafari, Ali Amoozandeh Nobaveh, and Reza Tahami. "Arash: A social robot buddy to support children with cancer in a hospital environment." *Proceedings of the Institution of Mechanical Engineers, Part H: Journal of Engineering in Medicine* 232, no. 6 (2018): 605-618.

- Elahi, Maryam Tavakol, Amin Habibnejad Korayem, Azadeh Shariati, Ali Meghdari, Minoo Alemi, **Ehsan Ahmadi**, Alireza Taheri, and Rozita Heidari. ""Xylotism": A Tablet-Based Application to Teach Music to Children with Autism." In *International Conference on Social Robotics*, pp. 728-738. Springer, Cham, 2017.

WORKS IN PROGRESS

- **Ehsan Ahmadi**, Ali Meghdari, Paolo Gallina. "An optimized painterly algorithm based on streamlines for painting robots." Robotics and Computer-Integrated Manufacturing, in preparation.
- **Ehsan Ahmadi,** Ali Meghdari, Minoo Alemi. "Social SLAM: 2D SLAM Technique Augmented by a Robust Person Tracker", in preparation.

SELECTED PROJECTS

- Design and Construction of a Mobile Social Robot for Pediatric Cancer   **M.Sc. Thesis**
  Hospitals (Arash Robot)-Part III: Position Control Comprising Simultaneous
  Localization and Mapping (SLAM) Technique and Person Tracking Module
- A novel optimized painterly algorithm   **Visiting student**
   based on streamlines for painting robot   **University of Trieste**
- Software development (ROS based) of Arash, a humanoid social robot   **RA in CEDRA**
- Chattering-free sliding mode control for permanent   **Nonlinear Control**
   magnet synchronous motor servo system with backlash
- Markerless registration of surgical system using weighted   **Robotics Surgery**
  Iterative Closest Point (ICP) comprising natural features of the face
- Ship/iceberg classification based on satellite images using

• Machine learning (Ranked first in the Kaggle competition in the class)	**Statistical Pattern Recog.**
• Modeling, analysis, and control of a Mass-Spring-Damper System using Recurrent Neural Network	**Smart Systems in Modeling and Control**
• Design of a novel passive cooling system for telecom shelters comprising phase change material and thermosiphon	**B.Sc. Final project**
• Design and Construction of a magnetic levitation system	**B.Sc. Final project (cooperator)**
• Control of a car active suspension system	**Automatic Control**
• Analysis of Forced Vibrations of a Cantilever Beam	**Mechanical Vibrations**
• Optimal design of a dynamic vibration absorber for a washing machine using MSC ADAMS	**Mechanical Vibrations**
• Design of a Butterfly Valve and its Gearbox	**Mechanical Design II**
• Calculation of Heat Flow Over a Plate Using Inverse Heat Transfer	**Thermal Optimization**
• Design and Optimization of a two-stage cascade refrigeration system	**Thermal Optimization**
• Two-dimensional prediction of time-dependent, turbulent flow around a square cylinder confined in a channel	**Computational Fluid Dynamics**
• Potential of Using Zeotropic Mixtures in ORCs for Waste-Heat Recovery	**Thermal Power Plant**

TECHNICAL REPORTS

- **E. Ahmadi**, "Heat Recovery Steam Generators: Design and Calculations", Technical Report, Moshanir power engineering consultants Co., Tehran, Iran, September 2015
- **E. Ahmadi**, "Gas Turbine Research and Development", Technical Report, Mapna Turbine Manufacturing Co., Karaj, Iran, August 2014

COMPUTER SKILLS

- **Computer Languages:**
  C/C++, Python, JavaScript, Visual Basic

- **Applications:**
  Robotic Operating System (ROS), MATLAB, Maple, Mathematica, LABVIEW, Arduino, Git, MSC ADAMS, SOLIDWORKS, CATIA, AutoCAD, Cura, Choreograph (NAO), MS Office, LaTex, Linux, Adobe Photoshop - Adobe Premier, ANSYS Fluent & CFX, ICEM, Gambit

- **Selected programing libraries**:
  OpenCV, PCL, Keras, Tensorflow, scikit-learn, NumPy, rospy

LANGUAGE SKILLS

- **English:** Fluent
- **Persian:** Mother tongue
- **Azerbaijani:** Mother tongue

REFERENCES

- **Dr. Ali Meghdari**, Professor, Sharif University of Technology   Email: meghdari@sharif.edu

- **Dr. Paolo Gallina**, Professor, University of Trieste   Email: pgallina@units.it

- **Dr. Farshad Kowsary**, Professor, University of Tehran   Email: fkowsari@ut.ac.ir

- **Dr. Azadeh Jafari**, Assistant Professor, University of Tehran   Email: azadeh.jafari@ut.ac.ir