

Bijan Mehralizadeh

Portfolio: bijanmehralizadeh.github.io

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INTEREST

System Engineering System Resiliency Internet of Things CPS

EDUCATION

- **University of Tehran** Tehran, Iran
Master of Science - Mechatronics Engineering; GPA: 3.3/4.0 2017 - 2021
Courses: Advanced Robotics (4.0/4.0), Artificial Intelligence (4.0/4.0), Digital Image Processing (4.0/4.0)
- **Shahrood University of Technology** Shahrood, Iran
Bachelor of Science - Mechatronics Engineering; GPA: 3.0/4.0 (last two years) 2012 - 2017

RESEARCH EXPERIENCE

- **Advanced Robotics and Intelligent Systems Lab** University of Tehran
Research Assistant (Supervisor: Hadi Moradi) 2017 - 2023
 - **Multi-modal autism screening system:** Design and develop a multi-modal system for assessing autism red flags in children automatically.
 - **Fully Robotic Social Environment:** Redesign & develop an automated robotic rehabilitation system for teaching and practicing affective interaction for children with ASD.
 - **Sensorized toy car:** Design and develop an Internet of Things toy for autism screening using multi-modal features.
 - **Robotic Social Environments:** Design & prototype a robotic platform for Autism therapy for children.
- **Lego Education Center** Shahrood University of Technology
Undergraduate Researcher (Supervisor: Vahid Abolghasemi) 2015 - 2017
 - **Bench marking machine vision algorithms:** Optimize machine vision algorithms for raspberry pi boards
 - **Lego pick and place mobile robot:** Prototype and simulate a Lego Mindstorms EV3 pick and place mobile robot

TEACHING & MENTORING EXPERIENCE

- **Advanced Robotics and Intelligent Systems Lab** University of Tehran
Mentor 2020 - 2021
 - **Python programming instructor:** Python 101, Algorithms, Image Processing
 - **Robotic instructor:** Python 101, ROS 101, Linux 101
- **Advanced Robotics and Intelligent Systems Lab** University of Tehran
Teaching assistant 2019 - 2020
 - **Advance Robotics course TA:** ROS 101, Gazebo robot simulation, Simulate Anki VECTOR robot
- **Lego Education Center** Shahrood University of Technology
Mentor 2015 - 2017
 - **Python programming instructor:** Python 101, Image Processing
 - **Matlab programming instructor:** Matlab 101, Simulink
 - **Arduino programming instructor:** Arduino 101, IoT systems

PUBLICATIONS

- **Sustainability: Mehralizadeh, B.**; Baradaran, B.; Nikkhoo, S.; Soleiman, P.; Moradi, H. A Sensorized Toy Car for Autism Screening Using Multi-Modal Features. Sustainability 2023, 15, 7790. <https://doi.org/10.3390/su15107790>
- **Frontiers in Robotics and AI:** Soleiman P, Moradi H, **Mehralizadeh B**, Ameri H, Arriaga RI, Pouretamad HR, Baghbanzadeh N and Vahid LK (2023) Fully robotic social environment for teaching and practicing affective interaction: Case of teaching emotion recognition skills to children with autism spectrum disorder, a pilot study. Front. Robot. AI 10:1088582. doi: 10.3389/frobt.2023.1088582
- **ICSR conference:** Soleiman, P., Moradi, H., **Mehralizadeh, B.**, Azizi, N., Anjidani, F., Pouretamad, H. R., Arriaga, R. I. (2020, November). Robotic Social Environments: A Promising Platform for Autism Therapy. In: , et al. Social Robotics. ICSR 2020. Lecture Notes in Computer Science(), vol 12483. Springer, Cham. https://doi.org/10.1007/978-3-030-62056-1_20

SELECTED PROJECTS

- **TBRD: the hand rehabilitation system (Control Systems, Embedded System, Sensor Fusion):** Hand spasticity rehabilitation system for post stroke recovery.
- **Earthquake simulator (System Identification, Sensor Fusion):** A small P-wave earthquake generator, closed-loop control system with a high accuracy vibration sensor.
- **Dot & Boxes agent (Reinforcement Learning, Expert System):** A Q-learning agent for Dot&Boxes game, trained with an expert system, winner of campus AI competition.
- **The modular mobile robot (System Integration, Path Planning, Sensor Fusion):** A 3D printed differential drive mobile robot for hand-eye coordination training for children with autism.
- **BAMS: the social robot platform (ROS, Signal Processing, Computer Vision):** An open source inexpensive social robot platform for children with autism rehabilitation.

SKILLS SUMMARY

- **Programming:** Python, C, C++, Matlab, Bash, Fortran
- **Frameworks:** ROS, Scikit, OpenCV, TensorFlow, Keras, Django, Flask
- **Tools:** GIT, Solidworks, AutoCAD, 3D print softwares
- **Platforms:** Linux, Arduino, Raspberry, Nvidia Jetson, STM32
- **Soft Skills:** Critical thinking, R&D team leadership, Systematic thinking
- **Language:** English (TOEFL iBT: 100), Farsi (Native)

VOLUNTEER EXPERIENCE

- **Brain's week exhibition** Tehran, Iran
Present the application of machine learning in autism screening November 2019
- **Tehran annual digital art exhibition** Tehran, Iran
Present smart screening and rehabilitating systems for children with Autism. October 2018

REFERENCES

References available upon request