

Mahta Akhyani

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Research Interests

Human-Robot Interaction, Biomechanics, Wearable Robots, Social Cognitive Robots

Education

- 2025 – Present **M.Sc. Mechanical and Robotics Engineering**
Gwangju Institute of Science and Technology - South Korea
Advisor: Prof. Pilwon Hur
- 2018 – 2023 **B.Sc. Chemical Engineering (Biotechnology sub-discipline)**
University of Tehran - Iran
CGPA: 15.63/20 (16/20 in the last two years)
Iranian University Entrance Exam ([IUEE](#)): **top 0.7%** of 144,000 candidates
Thesis (highest grade): "Design of mobile robot with SLAM capabilities for pipe inspection in chemical and petroleum industries"
[Media](#), [arXiv](#) [[PDF](#)]

Publications [Google Scholar](#)

- Peer-Reviewed* **Mahta Akhyani**, Pilwon Hur, "Real-Time State Anxiety Estimation for Adaptive Wearable Exoskeleton Control", *Proc. 41st ICROS Annual Conference (ICROS 2026)*, Daegu, Korea, pp. 199–200, Jul. 2026
- Under Review* Kwonseung Cho, **Mahta Akhyani**, Pilwon Hur, "Trust in Physically Coupled Human-Robot Interaction (pHRI): A Review and Measurement Framework for Direct Body-Robot Coupling", *ACM Transactions on Human-Robot Interaction* — major revision submitted
- Preprint* **Mahta Akhyani**, Hadi Moradi, "Modular Customizable ROS-Based Framework for Rapid Development of Social Robots", arXiv:2311.15780, 2023. [[arXiv](#)] [[Code](#)]
- Preprint* **Mahta Akhyani**, "Mapping Pipelines and Simultaneous Localization for Petrochemical Industry Robots", arXiv:2311.11948, 2023. [[arXiv](#)]
- In Preparation* Pegah Soleiman, **Mahta Akhyani**, Alireza Kargar, Hadi Moradi, "Empathy toward Robotic vs. Human Social Environments: A Comparison between Individuals with Autism Spectrum Disorder and Typically Developing Individuals"

Research Experience

- Summer 2024 **Research Assistant**
Gwangju Institute of Science and Technology (GIST), South Korea
Supervisor: Prof. Pilwon Hur
- Developed a Trust-POMDP algorithm for human-exoskeleton interactions

- 08/2022 – 10/2023 **Terahertz Photoelectronics Lab**
Department of Computer and Electrical Engineering, University of Tehran
Supervisor: Prof. Mohammad Neshat
 Project: **Electrically Conductive Mixed Matrix Membrane-Based 3-Layered Geometrically Matching Head Phantom** [More info](#)
- Synthesized and characterized polymers including PANI, PDMS, starch, RTV-2, graphene and carbon black for a multilayer head phantom through CPC and MMM fabrication
- 04/2022 – 07/2022 **B.Sc. Thesis Project** [Media](#), [arXiv](#)[\[PDF\]](#)
Design of mobile robot with SLAM capabilities for pipe inspection in chemical and petroleum industries
- Development of a sensor fusion pipeline integrating Kinect camera and IMU data to improve odometry estimates
 - Simulated and built a mobile robot platform and testing the ROS/Gmapping SLAM approach on it in a maze
- 06/2021 – 07/2024 [Advanced Robotics and Intelligent Systems Lab](#)
Department of Computer and Electrical Engineering, University of Tehran
Supervisor: Prof. Hadi Moradi
- Project Title: **Understanding Empathy Towards Social Robots and Its Implications for Individuals with Autism**
- Examined joint attention responses in autism for both robotic and human social interactions
- Project Title: **Modular Customizable ROS-Based Framework for Rapid Development of Social Robots**
- Developed reusable robot skill modules (face analysis, speech processing, dialogue agents, actuator control)
 - Engineered a distributed data processing pipeline optimized for multiple sensors
- 03/2019 – 02/2020 **Pharmacology Lab**
Department of Chemical Engineering, University of Tehran
Supervisor: Prof. Reza Zarghami
- Project: **Chem-E-Car Competition**

Teaching Experience

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| Spring 2022 | Teaching Assistant
Advanced Robotics (Graduate)
<i>University of Tehran</i>
<i>Lecturer: Prof. Hadi Moradi</i> <ul style="list-style-type: none"> • Assisted students with ROS-based localization on Anki Vector robots. |
| Winter 2021 | Teaching Assistant
Learning Python with Computer Vision
RoboTech Academy <ul style="list-style-type: none"> • Designed assignments, quizzes and provided tutoring. |

Professional Experience

- 01/2025 – 06/2025 **Junior Full-Stack Engineer**
[Azta Club](#), - *Tehran, Iran*
- Contributed to the projects using Python/Django, and Next.js
- 04/2020 – 02/2021 **Co-founder & Leader of *Fanjoo***
Online Peer-Knowledge Exchange Platform
- Addressed gap between education and workforce needs by empowering users to gain in-demand technical skills outside traditional academia.
 - Skills: collaboration, project management, team leadership.
- [More info](#), [GitHub](#)
- 10/2019 – 01/2020 **Django Backend Developer**
UTech Academy - Tehran, Iran
- Developed back-end services using Django REST framework.
- [GitHub](#)

Skills

Proficient:

Python, ROS, Gazebo, JavaScript, HTML/CSS, Robotics platforms (Raspberry Pi, Arduino, Jetson Nano), Git, SolidWorks

Experienced:

Django REST framework, Ubuntu, Computer vision (OpenCV, MediaPipe)

Intermediate:

C++, C, AVR, Machine Learning / ML (TensorFlow, Pandas, NumPy, Matplotlib)

Languages

Persian (native) | **English** (fluent, IELTS 8.0) | **Korean** (basic)

Certifications & Extra Courses

- 02/2025 **IELTS - Overall Score 8 (9L, 7.5R, 7.5W, 7S)**
- Spring 2021 [Fundamentals of Mechatronics \(Graduate level\)](#)
University of Tehran
- Project Grade 120/80 (extra credit) - Overall 19.5/20

References

Prof. Pilwon Hur

Professor, GIST – pilwonhur@gist.ac.kr

Prof. Hadi Moradi

Professor, University of Tehran – moradih@ut.ac.ir