

Mohammad Alaei

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 Website

 LinkedIn

 GitHub

EDUCATION

Master of Science

- Computer Engineering – Computer Systems Architecture; **GPA: 18.93/20**

University of Tabriz, Iran

Sep 2018 – Sep 2021

Thesis: Deep Learning-Based Non-Contact Reconstruction of Frontal EEG from Facial Expressions

Supervisor: Dr. Hadi S. Aghdasi

Bachelor of Science

- Computer Engineering – Computer Hardware Engineering; **GPA: 17.11/20**

University of Tabriz, Iran

Sep 2014 – Jul 2018

Final Project: Designing and Building a Robot to Play the Bell Musical Instrument

Supervisor: Dr. Hadi S. Aghdasi

RESEARCH INTERESTS

- Personalization and Recommender Systems
- Human–AI Interaction and Cognitive Computing
- Computational Modeling of Human Behavior
- Affective Computing

ACADEMIC EXPERIENCES

Research Internship

- National Elite Foundation of Iran and JobVision (Part-time)

Remote

Oct 2020 - March 2021

- Identified critical employer-demanded soft skills through research and analysis
- Designed quantification methods to evaluate these skills via online cognitive games
- Evaluated reliability and efficacy of selected games and documented key assessment tools
- Synthesized findings into actionable recommendations informing game-based hiring assessments
- Contributed to a 6-member team evaluating cognitive games to assess soft skills

Software Developer (VR Developer)

- National Elite Foundation of Iran (Part-time)

University of Tabriz

Oct 2019 - Sep 2020

- Developed a VR educational game for 3D geometry, deployed in multiple schools and recognized for enhancing comprehension of complex STEM concepts
- Implemented immersive VR functionalities using C#, Unity, and HTC Vive to boost 3D geometry learning
- Collaborated in a 10-member multidisciplinary team, contributing to core VR system design and implementation
- Designed intuitive menus and interfaces to optimize usability and student learning experience

Research Assistant

- Humanoid Robots and Cognitive Technology Research Lab (Part-time)

University of Tabriz

Sep 2018 - Feb 2019

- Reviewed assistive technology literature for cognitive and functional impairments to guide future research
- Synthesized and presented research findings at weekly lab meetings, informing discussions and project planning
- Mentored students on projects and theses, providing guidance on experimental design and methodology
- Managed lab resources to ensure availability of tools and smooth execution of experiments

MANUSCRIPTS & PREPRINTS

- Mohammad Alaei, Shabnam Oskouei, Hadi S. Aghdasi: “Deep Learning-Based Non-Contact Reconstruction of Frontal EEG from Facial Expressions”, Submitted to *Physica Scripta*, 2025.
- Seyedeh Mahrokh Alaei, Mohammad Alaei, Arman Zafaranchi: “An Explainable Human Facial Expression Recognition Model Based on CNN, Gabor Filters, and SVM”, Under Review at *The Visual Computer*, 2025.

ACADEMIC ACHIEVEMENTS

- Member of the **Exceptional Talent Group**, University of Tabriz, Iran 2018-2021
- Achieved the **First Rank** Among Students in My Master’s Degree, University of Tabriz, Iran 2021
- Admitted as an **Exceptional Talent** for a Master’s Degree, University of Tabriz, Iran 2018
- Achieved the **Third Rank** Among Students in My Bachelor’s Degree, University of Tabriz, Iran 2018

PROFESSIONAL EXPERIENCES

- **Founder & Research Engineer** Mar 2025 – Present
 - *Kavida*
 - Designed and implemented a goal-oriented networking platform with structured profiles and peer matching
 - Developed collaborator recommendation algorithms, improving predicted match accuracy by 30–40%
 - Architected infrastructure and data models to support scalable research in social networks

Technologies: Python, Django, PostgreSQL, Telegram Bot API, PyTorch, React.js, Data Analysis
- **Contract Software Engineer** Sep 2023 – May 2025
 - *EFT Project (via Herrmann Innovations)*
 - Engineered a real-time vehicle suspension analysis platform with IoT and computer vision, achieving 90% diagnostic reliability
 - Developed Raspberry Pi WiFi camera streaming system, boosting 4K FPS by 50% and reducing setup complexity by 40%
 - Managed and optimized DevOps infrastructure, improving data reliability to 95% and security by 80%

Technologies: Python, Django REST API, React.js, JavaScript, HTML/CSS, PostgreSQL, Nginx, Raspberry Pi, MJPG Streamer, Git, DevOps
- **Co-founder & Developer** May 2023 - July 2023
 - *Argon Cloud Service (Full-time)*
 - Architected full-stack features of a secure cloud platform, including a Telegram bot system, enabling authenticated and controlled access to VPN servers
 - Developed backend automation pipelines and a secure worker API for server and client management, including traffic monitoring and encrypted client provisioning

Technologies: Django, FastAPI, PostgreSQL, Telegram Bot API, JavaScript, HTML/CSS, Nginx, Git, DevOps
- **Research Software Engineer & Full-Stack Developer** Mar 2018 - Present
 - *Freelance*
 - Designed and deployed full-stack web applications, real-time experimental platforms, and automation tools, delivering scalable, multilingual, and research-grade systems
 - Engineered algorithms and prototypes for robotics, cryptography, and cognitive neuroscience with multithreading, sensor integration, and precise real-time data acquisition
 - Collaborated in multidisciplinary teams to integrate UI/UX, database modeling, and hardware-software interfacing, ensuring data integrity, reproducibility, and robust system performance

Technologies: Python, Flask, Django, C#, JavaScript, SQL, multithreading, real-time systems, robotics frameworks

CERTIFICATES

- Supervised Machine Learning: Regression and Classification, DeepLearning.AI and Stanford University Nov 2024
- The Interactive Track and the Course Project of Deep Learning, Neuromatch Academy Jul 2023
- Game Development Workshop in VR/AR, University of Tabriz Nov 2019

SKILLS

- **Languages:** Python, Java, C/C++, C#, SQL, JavaScript
- **Frameworks:** Pytorch, TensorFlow, Keras, Scikit-Learn, OpenCV, NumPy, Matplotlib, Pandas, Django, Flask, FastAPI, React, Bootstrap
- **Tools:** Unity, Codevision AVR, Git, Proteus, MySQL, SQLite, PostgreSQL
- **Platforms:** Linux, Web, Windows, Raspberry Pi, Arduino

LANGUAGE SKILLS

- **English:** Academic Proficiency
- **Azerbaijani:** Mother Tongue
- **Persian:** Native

REFERENCES

- **Hadi S. Aghdasi, Full Professor, Department of Electrical and Computer Engineering, University of Tabriz, Iran:** Email: aghdasi@tabrizu.ac.ir, aghdasi.ha@gmail.com, Phone: +98 41 3339 3753, Mobile: +98 914 406 0184
- **Leyli Mohammad Khanli, Full Professor, Department of Electrical and Computer Engineering, University of Tabriz, Iran:** Email: l-khanli@tabrizu.ac.ir, Phone: +98 41 3339 3725, Mobile: +98 914 313 8652
- **Mina Zolfy Lighvan, Associate Professor, Department of Electrical and Computer Engineering, University of Tabriz, Iran:** Email: mzolfy@tabrizu.ac.ir, Phone: +98 41 3339 3759, Mobile: +98 914 415 9281