

# Mohammad Alaei

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🌐 Website

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## EDUCATION

- **Master of Science** University of Tabriz, Iran  
*Computer Engineering – Computer Systems Architecture; GPA: 18.93/20* *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** University of Tabriz, Iran  
*Computer Engineering – Computer Hardware Engineering; GPA: 17.11/20* *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** Remote  
*National Elite Foundation of Iran and JobVision (Part-time)* *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)** University of Tabriz  
*National Elite Foundation of Iran (Part-time)* *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** University of Tabriz  
*Humanoid Robots and Cognitive Technology Research Lab (Part-time)* *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

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- **Founder & Research Engineer**  
*Kavida* *Mar 2025 – Present*
  - 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**  
*EFT Project (via Herrmann Innovations)* *Sep 2023 – May 2025*
  - 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 and Developer**  
*Argon Cloud Service (Full-time)* *May 2023 - July 2023*
  - 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 and Full-Stack Developer**  
*Self-Employed (Part-time)* *Mar 2018 - Present*
  - 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

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- 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

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- **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

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

## REFERENCES

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- **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