

Elnur Mammadli

Baku, Azerbaijan | (+994) 705458760 | emammadli23089@ada.edu.az | [Portfolio](#)

EDUCATION

ADA University

Bachelor of Science in Computer Science | CGPA: 3.98/4.00

Baku, Azerbaijan

Expected May 2028

- **Academic Honors:** Two-time Lotfi A. Zadeh List of Honor (GPA 4.00, Nov 2025 & Apr 2026), Dean's List of Distinction (GPA 3.92, Apr 2025).
- **Relevant Coursework:** Deep Learning, Numerical Methods for Engineers, Data & Information Engineering, Probability & Statistics, Discrete Structures, Linear Algebra, Calculus I & II, Programming Principles I & II.

PUBLICATIONS & PAPERS

Mammadli, E. (Manuscript in preparation). *Beyond TAM: A Persona-Based Model of Trust for AI Acceptance in Higher Education*.

RESEARCH & RELEVANT EXPERIENCE

International Olympiad in Artificial Intelligence (IOAI)

Team Leader & Trainee

Baku, Azerbaijan

July–August 2026

- Coordinated and trained the national student team in machine learning concepts and AI problem-solving strategies in preparation for the global Olympiad.

SWEEP-Net: Domain-Agnostic EEG Affective-State Decoding

Lead Researcher

Baku, Azerbaijan

Present

Architecting a low-power, neuromorphic pipeline for cross-subject 5-class EEG emotion recognition by integrating decoupled contrastive representation learning, Multiple Instance Learning (MIL), and Spiking Neural Network (SNN) distillation.

- **Spatiotemporal Feature Extraction:** Engineered a 5D Atrous-MobileNet encoder utilizing continuous wavelet transforms (CWT) and zero-FLOP Bi-Directional Temporal Shift Modules (TSM). Implemented a Decoupled Contrastive Learning (DCL) loss combined with a momentum queue to prevent positive preemption and extract continuous emotional geometry.
- **Biometric Debiasing & Subject Cleansing:** Executed Euclidean Alignment (EA) sequence whitening to destroy physical scalp-impedance artifacts, effectively reducing proxy subject-identification leakage from 87.10% to 64.10%. Developed a Covariance-Rank spectral gating test to conditionally remove linearly separable subject fingerprints via nullspace projection.
- **Sequence-Level Temporal Routing (MIL):** Designed a tri-branch SwiGLU-MIL aggregation head—incorporating Average, LogSumExp, and Attention branches—to resolve temporal label pollution. Integrated focal loss and per-class target entropy regularization to isolate brief affective climaxes from extended neutral baseline segments.
- **Neuromorphic Deployment (SNNization):** Architected a hybrid Spatio-Temporal Knowledge Distillation (ST-KD) framework to transfer continuous activations into an Adaptive Leaky Integrate-and-Fire (ALIF) Spiking Neural Network. Optimized membrane leak decay and threshold dynamics to maximize Synaptic Operation (SynOps) efficiency for hardware-level FPGA deployment.

TECHNICAL PROJECTS

TrashAI Web API | *Python, YOLOv6, Flask, Redis* | [\[GitHub\]](#)

2021 – 2024

- Optimized a custom YOLOv6-S object detection model on a curated 14K+ image dataset, achieving superior Average Precision (AP) scores of 82.4% for Plastic and 80.1% for Paper, outperforming YOLOv4 baselines.
- Engineered a multilingual Flask web application and RESTful API featuring JWT authentication and Redis-backed rate limiting for real-time inference.

Custom Deep Learning Framework | *Python, NumPy, VB* | [\[GitHub\]](#)

2020

- Architected a deep learning framework from scratch using raw NumPy, implementing CNN/MLP architectures, custom forward/backward passes, and optimizers without external libraries.
- Designed an interactive graphical interface (Paint.exe) integrated with VB and Batch scripts to capture user-drawn digits and generate real-time inferences.

Handwritten OCR & Text Segmentation (NTO Finals) | *Detectron2, PyTorch, CRNN* | [\[GitHub\]](#)

2022

- Spearheaded an end-to-end OCR pipeline to segment and transcribe handwritten text in school notebooks, utilizing Detectron2 (Mask R-CNN) for precise text-line polygon extraction.
- Integrated a custom CRNN architecture with a ConvNeXt/ResNet-34 backbone and BiLSTM, trained via CTC Loss.
- Minimized the modified Character Error Rate (CER) to an impressive 0.222 on the final evaluation set, securing 16th place out of 42 national finalist teams.

2GIS Road Sign Labeling (AIIJC) | *Python, EfficientNetB2, Deep Learning* | [\[GitHub\]](#) November 2021

- Constructed a multiclass-multilabel image classification model utilizing EfficientNetB2 to categorize road signs across 6 basic headings.
- Applied a comprehensive data augmentation pipeline (optical distortion, color jitter, blur) to significantly enhance model generalization and robustness.

Silicon Spatula | *Java, MVC Architecture* | [\[GitHub\]](#)

May 2026

- Programmed a comprehensive restaurant management simulation driven by a custom Java Swing GUI.
- Enforced strict MVC architecture utilizing custom generic queues and domain-aware exception hierarchies for robust state management and thread safety.

Smart House IoT Controller | *C#, Xamarin, Raspberry Pi* | [\[GitHub\]](#)

2019

- Built a native Android application via Xamarin to remotely control GPIO pin states on a Raspberry Pi 3B+ server via asynchronous HTTP endpoints.

ACTIVITIES & AWARDS

- **International Collegiate Programming Contest (ICPC):** 3rd Award & Highest Honor at Azerbaijan Regional Contest; 2nd Award & 3rd Award at Azerbaijan Qualifications.
- **Artificial Intelligence International Junior Contest (AIIJC):** 4th Place in Finals, 1st Place in Semifinals for the AI in Geoservices (2GIS) track (Moscow, 2021).
- **National Technological Olympiad (NTO) – Artificial Intelligence Track:** Finalist (Ranked 16th of 42 teams in national finals) and Stage 2 Winner (Moscow, 2021–2022).
- **”Talent NTO” Digital Portfolio Competition:** Prize-Winner across Artificial Intelligence, Python Programming, and Complex Engineering Problem Solving competencies (2021–2023).
- **Republican Field Olympiad in Informatics:** Four-time medalist (Gold, Silver, and two Bronze medals) for advanced algorithmic problem-solving in C++.
- **Hour of Code Outreach (Team Div&Conquer):** Organized and hosted a programming workshop for 20 middle school students at Secondary School No. 27; developed and published the team portfolio website [\[Link\]](#).
- **Microsoft Imagine Cup Junior Virtual AI Hackathon:** 2nd Place for developing an endangered species tracking concept utilizing machine learning.
- **”Cyber Stars” National CTF League:** 2nd Place among nationwide teams in practical cybersecurity challenges.

ADDITIONAL INFORMATION

- **Programming & Technologies:** C++, C#, Python, Java, MATLAB, Linux (Ubuntu), Git, TensorFlow, PyTorch, NumPy, Flask.
- **Languages:** Azerbaijani (Native), English (Fluent/C1, IELTS: 7.5), Russian (Fluent).