Sevinj Mahmudova

Cambridge, MA | sevinj_m@mit.edu | (857)-639-0090

Professional Summary

MIT Applied Mathematics and Computer Science student specializing in AI/ML research and engineering. International Math Olympiad medalist with hands-on experience building ML models, implementing EKF-based state estimation systems, and conducting mathematical research. Strong foundation in algorithms, machine learning, and quantitative problem-solving across academic and industry settings.

Education

Massachusetts Institute of Technology — Cambridge, MA
Candidate for B.S. in Applied Mathematics and Computer Science. — *Class of 2029*
Relevant Coursework: Introduction to Algorithms (6.1210), Introduction to Machine Learning (6.3900), Computational Thinking and Data Science (6.100B), Fundamentals in Programming (6.1010), Multivariable Calculus (18.02A), Real Analysis (18.100)

Turkish Diyanet Foundation Baku Turkic Lyceum — Baku, Azerbaijan
Gold Diploma. GPA: 5.0/5.0. — *2024*

Experience

AI Engineer Intern — May 2026 – July 2026
LMF Paris-Saclay — *Palaiseau, Paris, France*
- Implemented and extended a Back-and-Forth EKF system for microbial growth state estimation, incorporating analytical Jacobians and forward-backward smoothing.
- Built a full OD data pipeline from raw plate reads to fitted kinetic parameters.

Undergraduate Researcher (UROP) — January 2026 – May 2026
MIT Mathematics Department — *Cambridge, MA*
- Investigated combinatorial models for Grothendieck polynomials via ghost Kohnert moves, applying discrete mathematics and algorithmic techniques.
- Conducted computational experiments in SageMath and produced formal write-ups in LaTeX.

Data Squad Intern — April 2025 – July 2025
UniBank — *Baku, Azerbaijan*
- Developed NLP models including a sentiment analysis-based feedback analyzer using pandas, NumPy, and scikit-learn.
- Engineered a Fraud Detection Model, optimizing recall by addressing class imbalance through classification and clustering techniques.

Participant, Vector Program — January 2026 – January 2026
D. E. Shaw Group — *New York City, NY*
- Completed interactive case studies and Trade Lab simulations covering systematic and discretionary investment strategies.
- Collaborated with senior leadership during workshops on financial modeling, market analysis, and quantitative problem-solving.

Math Olympiad Tutor — February 2025 – July 2025
Self-employed — *Remote*
- Delivered over 10 hours of weekly instruction in advanced olympiad mathematics, specializing in Combinatorics and Geometry.
- Guided students to top-15 rankings in the National Math Olympiad 2025 through targeted coaching and curriculum design.

Projects

GENOME (AI@MIT)
- Built an RL agent to improve antibody binding to target proteins using an ESM-IF model to predict antibody and epitope sequences after masking input sequences.

Awards & Honors

- Bronze Medal, International Math Olympiad (July 2024): competed among 609 contestants from 108 countries
- Gold Medal, National Math Olympiad of Azerbaijan (May 2023): competed among 75,000 high school students

Skills

Programming: Python, C++, JavaScript, LaTeX, PyTorch

ML and Data Libraries: scikit-learn, pandas, NumPy, seaborn

Languages: English (C2), Azerbaijani (C2), Turkish (C2), Russian (B2), French (A2)

Leadership: Orientation Leader, Junior Balkan Math Olympiad National Team Deputy Leader, President of Student Organization