

Namig Mirzayev

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EDUCATION

Boston University, College of Engineering, Boston, MA

Sep 2023 – May 2027

Bachelor of Science in Computer Engineering: Machine Learning and Robotics Concentrations

- Cumulative GPA: 3.44/4.00, Dean's List (all semesters)

Azerbaijan British College, Azerbaijan, Baku

Aug 2016 – May 2023

Bilingual (Russian & English) Advanced Level Diploma

- Cumulative GPA: 3.94/4.00
- A-Level: Mathematics, Further Mathematics, Physics, and Information & Communication Technology

TECHNICAL SKILLS

Languages: Python, C, C++, C#, Java, JavaScript, TypeScript, SQL, HTML, CSS, Verilog

Frameworks & Libraries: React, Next.js, Node.js, .NET, ASP.NET MVC, TensorFlow, PyTorch, Django, pandas, Tailwind, Bootstrap, Three.js, WebGL, NLTK, CUDA, TorchMetrics, Pthreads, Arduino

Cloud & Databases: PostgreSQL, MySQL, AWS (Amplify, ECS, EC2, ELB), GCP (GKE, Ingress)

DevOps & Tools: Git, Github, Vercel, VS Code, Docker, Kubernetes, Terraform, Redis, Celery, Slurm, Bash/ Shell, Agile (Scrum), Nsight Systems, NVBit, Luthier, Microsoft Office, Google Workspace

WORK EXPERIENCE

Boston University, College of Engineering, Boston, MA

Sep 2025 – Present

Undergraduate Teaching Assistant - Introduction to Engineering (EK131)

- Coordinated office hours, graded assignment papers, and proctored exams as a Teaching Assistant for ~5-10 hours a week to support student learning and academic performance

UR Company Accounting & Consulting, Baku, Azerbaijan

Jun 2025 – Aug 2025

Backend Development Intern

- Contributed to the development of enterprise-level ERP systems and employee service management web application using C#, .NET, and ASP.NET MVC, digitalizing routine business operations across departments
- Designed and deployed RESTful APIs with JWT-based authentication and role-based access control, enhancing system reliability, data consistency, and user security for different employee groups
- Cooperated with developers via Git version control to maintain high code quality, achieving a 30% reduction in manual service request handling time and improving internal workflow efficiency

New Tone Beauty Bar, Baku, Azerbaijan

Sep 2021 – May 2022

Web Developer

- Designed, built and launched the salon's website from scratch, covering design, development and secure hosting setup on GoDaddy
- Built the front end in JavaScript and the back end with Python (Django) and PHP

RESEARCH EXPERIENCE

Research Assistant, Harvard SEAS (advisor: Prof. Juncheng Yang)

[Month] 2026 – Present

Fleet-scale I/O trace analysis and visualization

- Analyzed a node from a large fleet-scale I/O trace dataset, covering file system, cache and block-level request streams
- Contributing to traceViz, a project building on the same dataset to visualize and analyze system I/O traces
- Meeting weekly with the research group and sending the advisor regular written progress updates

Research Assistant, [Lab Name], [Professor/PI], Boston University

Oct 2026 – Present

Computer vision for tracking social behavior in clownfish

- Joined a computer vision project that tracks individual clownfish (*Amphiprion percula*) in underwater video to study social behavior and division of labor in size-ranked groups around host anemones
- Worked with a benchmark of 12,771 annotated frames and 37 fish trajectories, comparing SAM 3, YOLO + ByteTrack, GroundingDINO + ByteTrack and SU-T under occlusion and near-identical individuals, evaluated with HOTA, IDF1 and MOTA

- Contributing to Phase 2, which defines and evaluates behavior labels (23-behavior ethogram) with start and end times and actor/recipient roles
- [Add your own task, with a number once you have one]

PROJECT EXPERIENCE

Autonomous Debris-Collection Robot (EC463: Senior Design)

Sep 2026 – Present

Raspberry Pi 5, AI HAT+, ESP32, IMX708 camera, NEO-M8N GNSS, IMU, Wi-Fi + RC link, brushless thrusters

- Designing the Navigation & Autonomy subsystem I own on a 6-person team's river robot: a nine-state mission machine on a Raspberry Pi 5, and an ESP32 that runs the 100 Hz PD heading loop, thrust mixing and all stops
- Designed an ESP32 safety watchdog that zeroes thrust within 0.3 s of losing the host's 20 Hz heartbeat or after 1 s of operator-link silence, and triggers RETURN after 30 s of link loss
- Derived the approach design: a 0.3 m/s speed that reaches targets in about 17 s against the 30 s limit, and a $\pm 4.4^\circ$ heading hold over the 2 m camera blind leg from the 0.155 m funnel tolerance
- Designed latency compensation for the approach: the heading reference adds the camera bearing to the IMU heading at frame-capture time, so perception's processing delay does not become heading error
- Rejected GNSS for terminal guidance in a trade study (NEO-M8N 95% error of 4.2–5.2 m, about 30× the funnel tolerance) and used it for 5.0 m lawnmower coverage rows with 23% overlap and a 4.2 m geofence inset
- Co-developing the perception pipeline with a teammate: tiled 640×640 detection on the waterline band, run on a Raspberry Pi 5 with a 13 TOPS AI HAT+ and an IMX708 camera, targeting 17.1 FPS

ESP32 Team Quests (EC444: Smart and Connected Systems)

Sep 2026 – Present

C, ESP-IDF, FreeRTOS, ESP32, I2C, ADC, GPIO interrupts, Node.js, Express, Socket.IO, CanvasJS

- *ScooterBox*: built the hardware user interface for a 4-person team's ESP32 scooter activity monitor: an HT16K33 alphanumeric display driver over I2C, a debounced push button and a 3-pulse tip-over motor alarm
- *ScooterBox*: drew the wiring diagram for the ESP32, ADXL343 accelerometer, display, button and ULN2003 motor driver; the system classified motion and orientation and streamed live stripcharts to a Node.js dashboard
- *PackTrack*: wrote the photocell and thermistor drivers for a 4-person team's ESP32 cold-shipping sensor, converting ADC readings to lux and $^\circ\text{C}$; the device logged temperature, light, battery and tilt every 2 s
- *Installs and Blink*: set up the ESP-IDF toolchain and wrote a GPIO program that counts in binary on three LEDs

evilfool (evilfool.com)

Oct 2025 – Present

Next.js 16, React 19, TypeScript, PostgreSQL, Prisma, Supabase Realtime, Three.js, Tailwind, Vercel, Jest

- Architected, built and launched a production real-time multiplayer gaming platform end to end as sole engineer and designer (55,000+ lines of code), with 1500+ players in 19 countries
- Engineered serverless matchmaking with Postgres advisory locks and optimistic concurrency control to prevent race conditions and double-seating under simultaneous joins, paired with versioned state sync and Supabase Realtime broadcasts for low-latency gameplay
- Designed an authoritative server-side game engine with an original cheat-and-challenge mechanic (per-card challenge windows, deterministic step replay), validated by 119 automated Jest tests
- Built a full in-game economy and social layer: wagered matchmaking with automated pot payouts, a cosmetic shop of custom 3D avatars, friends, party rooms and an interactive guided tutorial
- Implemented secure authentication with JWT in HTTP-only cookies, Google OAuth, account linking and email verification
- Hardened production for public launch by locking down all 15 database tables with deny-by-default row-level security, splitting dev and prod environments, adding rate limiting, rotating secrets, and automating backups, scheduled workers, 27 schema migrations and versioned releases
- Created the complete visual identity, from hand-drawn characters to 3D models, a custom glass-effect design system and a Three.js environment, responsive on desktop and mobile

Curre (CS411: Requirements Engineering)

Mar 2026 – Apr 2026

Kotlin, Jetpack Compose, Retrofit, OkHttp, Java, Spring Boot, Spring Data JPA, Flyway, SQLite, BCrypt

- Built the Spring Boot register and login API for a 4-person team's Android running-safety app, demoed in class
- Secured stored passwords with BCrypt hashing and added server-side validation for matching passwords and required first and last names
- Connected the Jetpack Compose sign-up and login screens to the API through Retrofit, and kept users signed in across app restarts by saving the session with SharedPreferences
- Fixed a data isolation bug that sent every request as user 1: an OkHttp interceptor now attaches the signed-in user's ID, and the runs API returns only that user's runs

- Added first and last name fields to the user schema with a Flyway migration, and fixed the registration and login failures they exposed

Frogger (EC311: Introduction to Logic Design)

Nov 2025 – Dec 2025

Verilog, Vivado, Nexys A7-100T, VGA 640×480 display, 7-segment display, push buttons

- Built a Frogger game in behavioral Verilog on an FPGA with a 4-person team, drawing four traffic lanes of moving objects and a player-controlled frog on a 640×480 VGA monitor; the game worked at the final demo
- Designed the game to the course specification: a 5-second countdown on the 7-segment display, push-button moves of one lane or one slot, 3 lives and a 30-second round timer

Acrylic Truss (EK301: Engineering Mechanics I)

Nov 2025 – Dec 2025

MATLAB, method of joints and sections, buckling analysis, uncertainty analysis

- Contributed to a 4-person team's MATLAB analysis: solved member forces from the joint equilibrium matrix and checked each compression member against the class acrylic buckling fit in weak, nominal and strong cases
- Contributed to the geometry: adapted a Warren truss with an off-center load to shorten the critical compression members, for a predicted max load of 33.01 oz (±1.58 oz) at a cost of \$112.96 under the course cost model
- Contributed to the build: verified the program against a hand-solved truss with the methods of joints and sections after finding the member meant to fail in compression was in tension, then built the truss with fiber-tape-reinforced joints

Lightyears Away P2P (EK210: Introduction to Engineering Design)

Sep 2025 – Dec 2025

Arduino (C++), IRremote (NEC protocol), stepper motor, 4×4 keypad, 16×2 I2C LCD, MAX4466 microphone, Onshape

- Built a wireless infrared messenger with a 4-person team: two battery-powered Arduinos, a keypad transmitter on a stepper-driven 90° mount and an LCD receiver, sending 10 preset messages over NEC-encoded IR
- Compared two IR emitters by distance testing as a team and chose the LITE-5208A, which held 100% transmission success out to 8.5 ft, against 2 ft for the alternative
- Met the four prioritized objectives as a team: at least 5 ft range, 75% reliability, 90° rotation and 10 messages per minute (under 1 s per message), on a \$56.34 bill of materials
- Wrote “Lighty”, a voice-activated send mode beyond the original scope: it calibrates a MAX4466 microphone, detects voice activity by peak-to-peak amplitude, takes a message typed over serial and sends it as IR codes with beep-pattern feedback on a speaker

StockedUp (EC327: Introduction to Software Engineering)

Apr 2025 – May 2025

Java, Android SDK, Finnhub REST API, OkHttp, org.json, SharedPreferences, WorkManager, JUnit, Mockito

- Built the watchlist screen of a 4-person team's Android stock tracker: each saved stock shows its live price and a shares field, and the screen computes the position's total value
- Persisted saved stocks and share counts with SharedPreferences so the watchlist survives app restarts, and made the add buttons show whether a stock was already saved
- Extended the Finnhub API client to fetch each search result's current price from the /quote endpoint over OkHttp, and reformatted results so long company names no longer pushed the buttons off screen

DESIGN EXPERIENCE

“BOZHE” Hoodie, Russian Speaking Society at Boston University

Aug 2026 – Oct 2026

Adobe Illustrator, Keynote, Ponomar typeface, embroidery, crochet lace back panel

- Designed and produced the society's “BOZHE” merch hoodie, with Church Slavonic-style lettering embroidered over a crochet lace back panel and on the chest

BU-CASA Logo, Boston University Central Asian Society

May 2026 – Jul 2026

Adobe Illustrator, Canva, SVG and 4500×4500 PNG export

- Designed the society's logo, uniting five regional motifs: the ram's horn (kochkorak) of shyrdak rugs, Tian Shan and Pamir mountain and river waves, the Turkmen gul, the Samarkand eight-pointed star, and the Nowruz tulip
- Built the mark to represent all five Central Asian nations through shared heritage rather than any single country

Mood Control (Radio Edit), cover art for Mumla

Apr 2026

Adobe Illustrator, torn-paper photo collage

- Designed the cover art for the single “Mood Control”, released on Spotify, Apple Music, SoundCloud and other platforms
- Proposed the track's title, which the artist adopted

“Artistic Inclinations”, AR123: Foundation Design: Introductory Principles, Practices

Jan 2026 – Feb 2026

Adobe InDesign, Keynote, Canva, Minion Pro and Krungthep type, 5.5 × 8.5 in facing pages

- Designed and printed a book collecting my own original artwork for AR123
- Laid out 34 works across 40 pages in a book that combines hand-cut paper collage, pencil drawing, photography and digital collage, with the digital collages built by combining and heavily altering stock source images

VOLUNTEER EXPERIENCE

IDEA Animal Care Center, Baku, Azerbaijan

May 2021 – May 2023

Student Leader (Volunteer)

- Coordinated training sessions for volunteer groups, demonstrating basic animal care routines and how to tame street animals
- Organized and promoted monthly pet adoption fundraising events that placed more than 50 animals in new homes

OTHER SKILLS & INTERESTS

Languages: English (Fluent), Azerbaijani (Native), Russian (Fluent), Turkish (Intermediate)

Interests: Painting, House Music, Competitive Debating, Squash, Weightlifting, Board Games