BATUHAN SAMI AKCAY

Computer Engineering Student | Software Developer

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PROFESSIONAL SUMMARY

Third-year Computer Engineering student at Gazi University with hands-on experience in C, C++, C#, Python, and Java. Experienced in embedded firmware development, Unity-based VR simulations, real-time desktop applications, computer vision, and independent C++ game-engine development. Active contributor to TÜBİTAK-funded VR projects and the Basat Model Satellite Team for TEKNOFEST 2026, with a focus on practical software development and real-time technical systems.

TECHNICAL SKILLS

Programming Languages: C, C++, C#, Java, Python, Assembly 8086, JavaScript

Embedded Systems: STM32F407, ESP32, Arduino Mega/Nano, I2C, Sensor Architecture, Real-Time Systems

Game and Simulation: Unity 2D/3D/VR, Physics Engine Integration

Artificial Intelligence and Machine Learning: Linear/Logistic Regression, Neural Networks, NLP, Transformers, BERT, LLMs, Autograd/Backpropagation

Computer Vision: OpenCV, MediaPipe, Facial Landmark Detection, Eye/Gaze Tracking, Real-Time Image Processing

Tools: Git, GitHub, Android Studio, Photoshop, AutoCAD, Excel

Languages: Turkish - Native | English - Professional working proficiency

EXPERIENCE

Unity Developer - Gazi University Informatics Institute | November 2024 - Present | Ankara, Türkiye

- Develop Unity-based VR simulation features for the TÜBİTAK-funded VR Pharmacy Simulation project in collaboration with the Gazi University Faculty of Pharmacy.
- Implement AI algorithms, character controls, and disaster-tent simulation scenarios for interactive training use cases.
- Provide feature development, maintenance, and technical support for the VR Dental Simulation built for the Gazi University Faculty of Dentistry.
- Contribute to end-to-end simulation development using Unity 2D, 3D, and VR workflows in a team environment.

Embedded Software Developer - Basat Model Satellite Team, TEKNOFEST 2026 | 2025 - 2026 | Ankara, Türkiye

- Work as an embedded software developer in a 6-person engineering team for the TEKNOFEST 2026 Model Satellite competition.
- Develop firmware in C/C++ for STM32 microcontrollers used in satellite subsystems.
- Work on system-level memory usage, timing behavior, and reliability improvements for embedded operation.

IT Intern - Social Office | December 2025 - January 2026 | Remote

- Completed a volunteer remote internship with structured training in Python, AutoCAD, Photoshop, and Excel, delivering small standalone projects for each tool.

SELECTED PROJECTS

FOKUS - Physical Focus Monitoring and Alert System

C# .NET, Python, OpenCV, Dlib, MediaPipe, gRPC, Named Pipes, SQLite | Team Project

- Built a Windows desktop application that performs real-time focus monitoring using computer vision.
- Designed a low-latency IPC architecture between the C# OS service/GUI layer and the Python vision/biometric processing layer.
- Resolved data-race issues in the decision-engine module using multithreading and supported a 100 ms image-processing loop target.

BSAEngine - Independent C++ Game Engine

C++, CMake, C#

- Building a personal C++ game engine with a modular architecture and CMake-based build system.
- Integrated a C# scripting layer to support dynamic runtime scripts on top of the engine.

Calibration Cabinet Control System - STM32F407 Automation System

C, STM32F407, I2C

- Developed a temperature and humidity control system running on an STM32F407VGTX microcontroller.
- Integrated LCD, keypad, DHT22/AM2302 sensors, and heater/humidifier actuators for embedded control.

otograd - Minimal Automatic Differentiation Library

C

- Developed a minimal autograd library in C with computational graph and backpropagation support.
- Implemented scalar Tensor structures, mathematical operation nodes, topological sorting, and backward propagation.

Clickbait Detector - Google Chrome Extension

Python, NLP, BERT, JavaScript, Jupyter | Team Project

- Co-developed a Chrome extension that detects clickbait headlines on news websites in real time.
- Worked on NLP preprocessing pipelines and BERT-based headline classification.

EDUCATION

Gazi University - B.Sc. in Computer Engineering | September 2023 - Present | Ankara, Türkiye

Relevant coursework: Software Engineering, Database Systems, Microcontrollers & Assembly, Computer Graphics, Introduction to Data Science

Şeyh Edebali Anatolian High School - High School Diploma | 2018 - 2022 | Istanbul, Türkiye

VOLUNTEERING

Organizer - AyazJam '25, ACM Gazi

- Helped organize a large-scale game jam with 200+ participants and 30+ completed games.
- Contributed to team communication, event operations, logistics, and coordination.