



Omar Yarali

Date of birth: 09/11/2006 | **Nationality:** Azerbaijani | **Gender:** Male | **Address:** Türkiye (Home)

● EDUCATION & TRAINING

15/09/2020 - 15/06/2023 - BAKU, AZERBAIJAN

CERTIFICATE OF COMPLETE SECONDARY EDUCATION- REPUBLICAN LYCEUM SPECIALIZED IN PHYSICS, MATHEMATICS AND INFORMATICS

During my time at the Republican Lyceum Specialized in Physics, Mathematics and Informatics, I maintained a perfect 5.0/5.0 GPA across my studies, establishing a rigorous foundation in quantitative and analytical disciplines. My dedication to academic excellence culminated in achieving one of the highest scores nationwide on both the 9th-grade school-leaving examination and the 11th Grade National University Entrance Examination. Notably, I scored a perfect 100 in Mathematics on both of these high-stakes assessments, which further underscores the analytical capabilities that led to my qualification as a finalist in the Republican Math Olympiad. Alongside my formal coursework, I began developing practical technical competencies by initiating independent software projects in the C programming language and leveraging my English proficiency to access broader educational materials. Beyond academics, I actively cultivated strategic foresight and critical problem-solving skills through consistent participation in chess, while also demonstrating strong teamwork, communication, and competitive drive by helping my team secure the school football championship among all 11th-grade classes.

Level in EQF: 4

30/09/2024 - Current - BURSA, TÜRKİYE

BACHELOR OF SCIENCE IN ELECTRICAL AND ELECTRONICS ENGINEERING- BURSA ULUDAG UNIVERSITY

Currently, I am an Electrical and Electronics Engineering student at **Bursa Uludag University**, where I study as a recipient of the prestigious, fully-funded **Türkiye Bursları scholarship** and maintain a **GPA of 3.67**. Demonstrating a strong commitment to academic excellence and international mobility, I am a **winner of the Erasmus+ program** and am preparing to spend my next semester studying at **Hochschule RheinMain** in Germany. My tenure at the university has been defined by leadership in high-level technical research and development; I serve as the **Electronics Team Captain** for the **Rover Project**, where I am currently designing a complex **Power Distribution Board** for the **European Rover Challenge**. My expertise in **AI and embedded systems** is further highlighted by my role as Electronics Team Lead for the **'iGlasses' project**, where I independently developed an AI-powered smart glasses system for the visually impaired using **Jetson Nano** and **ESP32**—a prototype that secured **3rd place** in the **Youth Tech Begin competition**. Additionally, I am an active member of the **iTech R&D team**, contributing to the hardware-software integration of **unmanned vehicles** and **drones** using **Pixhawk** and **Linux-based systems**. Beyond my core research, I have successfully completed a **C2 level Turkish language course** with a university certificate and remain deeply involved in campus life through societies focused on **programming, robotics, socializing and football**, while maintaining a rigorous focus on applying **advanced mathematics and physics** to real-world engineering solutions.

Level in EQF: 6

● WORK EXPERIENCE

09/12/2025 - CURRENT - BURSA, TÜRKİYE

PRINTED CIRCUIT BOARD (PCB) DESIGNERULUROVER

As the **Electronics Team Captain** for our competitive robotics initiative targeting the **European Rover**

Challenge, I specialize in the end-to-end development of advanced embedded systems and hardware architecture. My core technical expertise lies in designing multi-layer **Printed Circuit Boards** that seamlessly integrate high and low-speed signal routing with complex, high and low-current power management. A primary focus of my work is the development of modular **Power Distribution Boards** capable of safely managing the high-current demands of robotic actuators. **Building on this power infrastructure, I engineered custom Motor Drivers and a centralized Main Controller from the ground up, utilizing STM32 microcontrollers to orchestrate complex drive systems and real-time processing.** To complement this hardware design, I develop robust firmware across multiple architectures—including **STM32, ESP32, and Arduino**—ensuring flawless hardware-software integration for autonomous navigation and sensor data acquisition in extreme competition environments.

25/11/2024 - CURRENT - BURSA, TÜRKİYE
EMBEDDED SYSTEMS DEVELOPERITECH.TR

As the **Electronics Team Lead** for the 'iGlasses' project within the **iTech.tr** R&D team, I direct the hardware and embedded systems development of an AI-powered wearable designed to assist visually impaired individuals. My core technical responsibility is engineering the complete electronic architecture, ensuring we successfully integrate microcomputers like the Jetson Nano and Raspberry Pi to deliver powerful, real-time AI processing within a compact, wearable profile. Specifically, I engineered the custom hardware power design for the smart glasses and actively developed and integrated the device's AI-supported voice assistant.

Beyond this specialized wearable tech, my role at iTech extends to broader autonomous initiatives, where I contribute to the hardware-software integration of unmanned vehicles and drones. Furthermore, I actively drive our project's growth by representing the team in high-stakes pitches and technical exhibitions. Recently, I presented our iGlasses prototype at the 'Youth Tech Begin' competition, where **we earned 3rd place and secured a 30,000 grant to further advance our hardware.**

Building on this success, our technical and commercial viability was further recognized in June 2026 when we were awarded the **Entrepreneurship Potential Award** at the 3rd Project Exhibition. Organized by the **Bursa Uludağ University Teknofest Community and the Türkiye Technology Team (T3) Foundation, this recognition also secured us a share of a 20,000 prize pool,** validating the real-world impact and scalability of our assistive technology startup.

06/07/2026 - CURRENT - BURSA, TÜRKİYE
ENGINEER INTERN T.C. SANAYİ VE TEKNOLOJİ BAKANLIĞI | REPUBLIC OF TÜRKİYE MINISTRY OF INDUSTRY AND TECHNOLOGY

Selected as an Engineer Intern under the Türkiye Bursları Uluslararası Öğrenci Staj Programı at the Ministry of Industry and Technology. In this full-time role, I contribute to national industrial projects by applying my expertise in hardware engineering, embedded coding, and AI-integrated IoT devices. I collaborate with technical teams to advance technological innovation and support large-scale engineering objectives.

● **SKILLS**

work as a team | electrical wiring plans | electricity | install electric switches | test electrical equipment | use measurement instruments | understand spoken Turkish | embedded systems | firmware | use technical drawing software | write Turkish | use CAD software | execute analytical mathematical calculations | understand written Turkish | make an effort | electrical testing methods | printed circuit boards | electronic and telecommunication equipment | consumer electronics | design circuits using CAD | upgrade firmware | provide power distribution | install low voltage wiring | power electronics | assemble printed circuit boards | power engineering | printed circuit boards testing methods | microprocessors | robotic components | obtain sponsorship | brand marketing techniques

● **LANGUAGE SKILLS**

Mother tongue(s): **AZERBAIJANI**

UNDERSTANDING	SPEAKING	WRITING
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	Listening	Reading	Spoken production	Spoken interaction
TURKISH	C2	C2	C2	C2
ENGLISH	C1	C1	B2	B2
RUSSIAN	A1	A1	A1	A1

● **PROJECTS**

26/03/2026 - CURRENT

Bottom PDB of Rover The **Bottom Power Distribution Board (PDB)** functions as the primary power entry point and is specifically engineered to manage the system's most power-intensive subsystems, **focusing on high-current routing, motor drive supply, and core compute power.** For locomotion and actuation, the board directly drives the DC and stepper motors, ensuring safe and reliable operation under heavy loads and sudden directional shifts by utilizing transient voltage suppression (TVS) diodes and a dedicated capacitor bank to mitigate voltage spikes and prevent back-EMF damage. To support the main computational units, the architecture integrates two **XL4016 step-down DC-DC converters** to deliver precise, isolated power: a robust 19V, 4A line dedicated to the **Nvidia Jetson Nano**, and a stable 5V, 6A line for the **Mini Lab Raspberry Pi 5.** Furthermore, the board is fortified with comprehensive protection circuitry, employing dedicated fuses on the motor power lines to safeguard against overcurrent during potential motor stalls, alongside strategically placed SMD fuses on individual subcircuits to guarantee that a localized component failure does not cascade through the broader power distribution network.

26/03/2026 - CURRENT

Top PDB of Rover The **Top Power Distribution Board** functions as the secondary power management module, mounting directly above the primary board to handle auxiliary systems, peripheral power, communications, and safety monitoring. To support these critical subsystems, the board utilizes two **XL4015 step-down converters** to deliver stable, targeted power, specifically routing a dedicated 24V line for the **Ubiquiti communications gear** and a 12V line to drive the system **LEDs and cooling fans.** Beyond power delivery, this board serves as a central diagnostic hub by incorporating **a digital voltmeter for real-time visual tracking of the live battery voltage .** Continuous monitoring of this metric is crucial to prevent deep discharge, which could cause irreversible damage to the battery cells and pose severe safety risks. Additionally, by observing real-time voltage sags during high-load operations, the team can proactively identify potential power delivery bottlenecks, ensuring they are addressed before causing critical compute nodes to experience a brownout and reset.

07/01/2026 - 21/01/2026

STM32F446-Based Rover Main Control Board This custom-engineered **Main Control Board** acts as the highly complex central nervous system for the ULUROVER team's robotics platform. At its core lies a high-performance **STM32F446VET** microcontroller, safely driven by an onboard +5V to +3.3V power regulation circuit and flashable via a standard **ST-LINK header**. The PCB is heavily optimized for advanced locomotion, breaking out signals to command up to six independent DC motors and three articulation stepper motors, while an integrated **BNO055** IMU provides the real-time 9-axis spatial awareness necessary for precise navigation. To seamlessly link the low-level firmware with high-level autonomy, the board features an extensive communication suite, including an industrial **CAN bus protected by a TJA1051 transceiver, USB 2.0 Full-Speed connectivity, an SBUS receiver circuit for remote controlling ,** and dedicated **UART headers** routed explicitly to interface with an external **Jetson edge-computing module.**

28/10/2025 - 12/11/2025

6-Channel DC Motor Driver Board with STM32F405RGT6 This custom-designed **Motor Driver Board,** is a highly integrated 6-channel motor control system built around a central **STM32F405RGT6 microcontroller.** Main power is supplied via a robust **XT60 connector** and routed through a comprehensive input protection circuit featuring fuse and transient voltage suppressor. This power is carefully managed by an onboard **XL4015 DC-DC buck converter** to deliver +5V, while an **AMS1117-3.3 linear regulator** supplies +3.3V for the logic

components. For external telemetry and command integration, the **MCU communicates via USART**, a **USB 2.0 Full-Speed interface**, and an industrial **CAN bus equipped with a TJA1051T-3** transceiver and **PESD1CAN ESD protection**. The board executes its primary locomotion function through six independent H-bridge circuits utilizing **DRV8876PWR motor driver ICs**, which interface directly with six dedicated green screw terminals aligned along the PCB's right edge.

● CERTIFICATIONS

09/10/2025 Udemy

PCB Design with KICAD from Basic to Advanced

Project Based - Completed a comprehensive 16-hour certification in end-to-end custom PCB design using KiCad. Mastered schematic capture, footprint assignment, multi-layer routing, copper pours, and rigorous ERC/DRC validation to meet manufacturing standards. Applied these principles to engineer a fully functional, manufacturable breadboard power supply from scratch, managing everything from voltage regulator integration to precise mechanical alignment and Gerber file generation. This intensive training established the strong technical foundation necessary for developing complex, robust hardware and custom power distribution systems.

14/12/2024 Coursera

The Arduino Platform and C Programming

Online - Gained foundational expertise in embedded systems, focusing on C programming fundamentals, microcontroller architecture, and direct hardware-software interfacing. Developed practical skills in writing and debugging firmware to read sensor data, control actuators via GPIO pins, and implement reliable control logic. This coursework established the essential programming groundwork required for designing robust firmware architectures and seamlessly integrating complex electronic hardware in competitive robotics environments.

29/05/2024 Bursa Uludag University

Turkish Language Certificate

Presential - Achieved advanced fluency, demonstrating the ability to effectively communicate complex technical concepts, collaborate seamlessly within engineering teams, and successfully navigate rigorous academic environments in Turkish. This credential highlights strong adaptability and the cross-cultural communication skills essential for professional integration and collaborative project execution.

05/08/2024 Plepa Eğitim

C Programming

Project Based - Completed a rigorous 200-hour comprehensive training in the **C Programming Language** via Plepa Training and Consulting. Mastered core and advanced C programming principles essential for low-level system development, including precise memory management, pointers, and complex data structures. This extensive, deep-dive coursework fortified the fundamental software engineering skills required to write highly efficient, reliable firmware for STM32, ESP32, and custom microcontroller integrations in competitive robotics environments.

11/02/2024 CSD C ve Sistem Programcıları Derneği

Introduction to Programming Using Java

Online - Completed an intensive 80-hour **Introduction to Programming** course organized by the C & System Programmers Association (CSD). Established a rigorous foundation in core programming logic, algorithmic problem-solving, and fundamental software design principles. This critical introductory training built the essential logical framework required to seamlessly transition into advanced C programming and the development of complex embedded firmware for competitive robotics systems.

● VOLUNTEERING

09/05/2024 - CURRENT Istanbul

T3 AI'LE Pioneering the development of indigenous artificial intelligence (AI) models in Turkey involves integrating this technology into services and cultivating a skilled AI workforce. This initiative aims to foster innovation, self-reliance, and competitiveness in the global AI landscape, contributing to economic growth and societal well-being.

10/06/2024 - CURRENT Bursa

Türkiye Teknoloji Takımı Vakfı As a student volunteer at Türkiye Teknoloji Takımı Vakfı (Turkey Technology Team Foundation), I contribute to various activities aimed at promoting technology and innovation in Turkey.