

Furkan Kadir Yılmaz

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Summary

Engineer working across embedded systems, AI and software, with hands-on experience in STM32 based firmware, CAN communication, bootloader architectures and hardware-software integration. Experienced in robotics, embedded networking, and real-time systems through industry internships and multidisciplinary engineering projects.

Experience

BAYKAR Technologies – Istanbul, Türkiye

Embedded Software Intern

August 2026 – September 2026

Embedded Software Intern - Lightweight Platforms

February 2026 – May 2026

- Developed and debugged embedded software for STM32-based systems, working with low level peripherals and CAN communication.
- Worked on bootloader based firmware update architectures and hardware-software integration for embedded platforms.

Assan Elektronik - Istanbul, Türkiye

R&D Engineering Intern

July 2025 – August 2025

- Designed and validated a 24V / 2A (48W) flyback SMPS, achieving approximately 87% efficiency and $\pm 2\%$ output regulation.
- Calculated transformer and power-stage parameters, analyzed control-loop stability, and performed PCB debugging and hardware validation using oscilloscopes and electronic loads.

Projects

ForkPilot – Open Source | github.com/forkpilot/forkpilot

October 2026

- Built a tool that finds the commit that changed how a drone flies: it runs ArduPilot and PX4 simulations on a good and a bad commit, decides statistically whether flight behaviour changed and bisects to the culprit.
- Found a unit regression in ArduPilot's PosHold brake threshold and fixed it ([PR #34624](#), merged); found an AUTO-mode bug confirmed by a core developer ([issue #34651](#)).

Yildiz Rover – University Rover Team | Embedded Software

October 2025 – September 2026

- Developed STM32 based embedded software for rover mobility and robotic subsystems, including motor and actuator control, sensor acquisition, command processing and safety logic.
- Integrated and debugged distributed embedded subsystems using CAN, UART, SPI and I2C, working on inter module communication, peripheral interfaces and hardware-software integration.

Wearable LoRa Mesh Network – Graduation Thesis

- Developed a kinematics aware, event-triggered cross-layer routing protocol for a wearable LoRa mesh network, integrating motion-aware link-quality routing, emergency-state management, CAD based channel access and adaptive payload transmission.
- Developed and validated modular embedded firmware through 99 unit tests, real hardware experiments and 2880 MATLAB simulation runs; dynamic payload slicing reduced the calculated LoRa time-on-air by 98% (1810 ms to 36 ms).

SynCologne – Co-Founder | syncologne.com

- Co-founded and built a live context aware fragrance decision engine using Next.js, TypeScript and Python covering product strategy, system architecture, recommendation logic and user experience.
- Designed a 13 dimensional scent model and wardrobe aware recommendation and layering system that evaluates user preferences and contextual factors such as mood, weather, season and occasion.

Education

Yildiz Technical University (YTU) — B.Sc. in Electronics and Communications Engineering

2021 – 2026

Instituto Politécnico de Coimbra - Erasmus+ Exchange Program

February 2024 – June 2024

Technical Skills

Programming: C, C++, Python, MATLAB

Embedded Systems: STM32, HAL/LL, Bootloaders, Motor Control, Real-Time Systems

Protocols & Tools: CAN, UART, SPI, I2C, LoRa, Git, STM32CubeIDE, PlatformIO

Languages: Turkish (Native), English (Upper-Intermediate)