Cevat Furkan Erkara

Embedded Systems • FPGA Data Acquisition • Power Electronics

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I'm a third-year Electrical and Electronics Engineering student who loves working close to the hardware. My interests are embedded systems and power electronics, and I'd love to end up in automotive embedded software. This summer I spent two months in Italy building an FPGA-based data acquisition system for power-grid measurements. I'm looking for internships, working-student or part-time roles from Summer 2027.

EXPERIENCE

Grid Society S.r.l. *Torre Boldone (Bergamo), Italy*
Embedded Systems & FPGA Intern (Erasmus+ Traineeship) *Jul 2026 – Sep 2026*

- I built a data acquisition pipeline on an FPGA board from scratch for an R&D system that measures power-grid disturbances: 8 channels at 250 kS/s. Along the way I picked the sensors, tuned the sampling rate and worked on real-time signal processing.
- I started from an open-source HDL project on GitHub and adapted it to our ADC. Data goes from the FPGA through DMA into Linux on the ARM side, where a Go service I wrote sends it over TCP to a bridge PC.
- On the bridge PC, I compressed the stream with FLAC (about 2:1, lossless) and uploaded it to S3-compatible storage (AWS S3 / MinIO). In my tests it ran without a break until the server's disk was full.
- I set up builds with GitHub Actions and deployment with Ansible, so a new unit can just pull the latest binaries and run. One unit is live today.

Afyon Kocatepe University – IT Department *Afyonkarahisar, Turkey*
Network Automation Developer (Intern) *Nov 2025 – Jun 2026*

- I wrote a network configuration editor in Rust with Web-Tree-Sitter, so IT technicians could manage NetConf/YANG models from one place.
- I moved their local configuration workflow to a web app with LDAP login and role-based access.

EDUCATION

Afyon Kocatepe University *Afyonkarahisar, Turkey*
B.Sc. in Electrical and Electronics Engineering *Oct 2024 – Jun 2028 (expected)*

- Relevant coursework: Circuit Analysis, Electromagnetic Field Theory, Low-Level Programming.

Riga Technical University *Riga, Latvia*
Erasmus+ Exchange Semester (nomination pending) *Spring 2027*

ENGINEERING PROJECTS

Networked Sensor Data Acquisition (TTP229) | *C, ESP-IDF, ESP32, TCP/IP* *Completed*

- I wrote my own ESP-IDF driver for a TTP229 touch module instead of using Arduino libraries, to understand exactly what the hardware was doing.
- I added a TCP client that streams touch events over Wi-Fi to a server in real time.

3S Li-ion Battery Management System | *C/C++, ESP-IDF, FreeRTOS* *Prototype*

- I wrote a register-level I2C driver for the INA219 current/voltage sensor on an ESP32.
- I designed the FreeRTOS firmware around steady sampling, interrupt handling and static memory allocation, so it doesn't run into heap fragmentation.

TECHNICAL SKILLS

Programming: C, C++, Go, Rust, Python
Embedded: ESP-IDF, FreeRTOS, ESP32, embedded Linux; I2C, SPI, UART, CAN (TWAI)
FPGA (basic): Xilinx Vivado, adapting open-source HDL designs, FPGA-to-processor data transfer via DMA
Networking: TCP/IP, NetConf, YANG, LDAP
DevOps & Cloud: Linux (NixOS, Arch), Docker, Git, GitHub Actions, Ansible, AWS S3, MinIO
AI-Assisted Development: Claude Code, Antigravity CLI, Hermes Agent; I plan first, then work with separate agents for architecture, writing, editing and reviewing code
Web (secondary): TypeScript, JavaScript, React, NestJS
Languages: English (professional working proficiency), Turkish (native)