# Berk Selenay

**Electrical & Electronics Engineer**

M.Sc. Sustainability Management, RWTH Aachen University


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FPGA & Embedded Systems · Power & Grid Systems · Energy Systems Optimization · EV Charging · Sustainability Management

## PROFILE

Electrical and electronics engineer with hands-on experience across FPGA vision systems for UAVs and UGVs (HAVELSAN), grid control software (Siemens), medium voltage switchgear (Eaton) and EV power distribution (Bozankaya). Completing an M.Sc. in Sustainability Management at RWTH Aachen with a grade of **1.8**. Master's thesis at the E.ON Energy Research Center optimizes commercial EV charging under different tariff designs and bidirectional flexibility, using MILP and rolling horizon scheduling.

## EDUCATION

### RWTH Aachen University
Oct 2024 to Apr 2027 (expected)

**M.Sc. Sustainability Management** · Taught in English · Grade 1.8 (German scale) — Aachen, Germany

- Top grades: Sustainability Analytics (**1.0**), Strategy and Sustainability (**1.3**), Earth System Science (**1.3**)
- Thesis: *Optimising Commercial Electric Vehicle Load Profiles through Tariff Design and Bidirectional Flexibility*

### TOBB University of Economics and Technology
Sep 2018 to Apr 2024

**B.Sc. Electrical and Electronics Engineering** · Specialization in Embedded Systems — Ankara, Turkey

- Bachelor's thesis: real time 360° FPGA video stitching system, built with HAVELSAN

## EXPERIENCE

### E.ON Energy Research Center, RWTH Aachen University
Aug 2025 to Present

**Master's Thesis Student** · Institute for Future Energy Consumer Needs and Behavior (FCN-ESE) — Aachen, Germany

- Building a mixed integer linear programming (**MILP**) model with a rolling horizon to schedule charging for commercial electric vehicle fleets.
- Assessing how tariff design and bidirectional flexibility reshape commercial EV load profiles within a Germany-wide framework.
- Built a citation map of the literature and a scoring system to rank candidate datasets, including JERICHO-E-usage (NUTS2 energy demand).

### HAVELSAN
Dec 2023 to Jul 2024

**Bachelor's Thesis Student, FPGA Vision Systems** · SUIT Plus Program — Ankara, Turkey

- Designed and implemented a 360° panoramic surveillance camera with ultra low latency video stitching in Verilog and VHDL on FPGA, reaching processing speeds up to **30× faster** than conventional methods.
- Integrated the system on ZYNQ and PYNQ platforms for UAVs and UGVs, with an extended dome camera mode for UAVs.
- Designed the architecture for C++ and Python integration, using OpenCV for video processing (**GitHub**).

### Siemens
Sep 2023 to Dec 2023

**Software Engineering Intern** · Grid Software Department — Ankara, Turkey

- Contributed to Spectrum Power 4 and 7, Siemens' power grid monitoring and control software.
- Managed station data in the Information Model Management (IMM) system: configuration, data integrity and XML imports and exports.
- Built **three automation tools** in JavaScript and Perl: a reporting tool for IMM data, a data manipulation tool that embeds structured data into IMM, and an auto station generator that cut manual station setup time.
- Onboarded new interns and part-time employees.

### Eaton
May 2023 to Aug 2023

**Power Systems Engineering Intern** · Engineering Department — Ankara, Turkey

- Cut switchgear cable lead times from **6 to 12 months down to 1 to 2 weeks** by sourcing from local subcontractors in Turkey instead of Eaton's Netherlands facility.
- Configured XIRIA switchgear and produced single line and multi line schematics and 3D models in EPLAN P8 with Eaton's Hengelo (Netherlands) team.
- Benchmarked medium voltage switchgear (XIRIA, HMH, URING, UX, UMC) on arc quenching, circuit breakers and load break switches to support product development.
- Ran quality control on XIRIA production units, documented defects for engineering, and kept BOMs and technical files current in SAP.

### Bozankaya
May 2021 to Aug 2021

**Electrical and System Design Intern** — Ankara, Turkey

- Contributed to schematic design and integration of power distribution systems for electric trams and buses in EPLAN P8 and AutoCAD, through to production readiness.
- Performed high voltage production tests and implemented the resulting design revisions.

## LEADERSHIP AND ACTIVITIES

### Aeron Team Aachen
Nov 2025 to Present

**Co-Team Manager and Treasurer** · Student VTOL UAV team — Aachen, Germany

- Developing flight control software for the team's foldable wing (Transwing) VTOL UAV across hover, transition and cruise.
- Head of strategy, marketing, sponsorship and finance: budget planning, income and expense tracking, and oversight of project funds.
- Leading the team's incorporation as a registered association (e.V.), from statutes to official registration.

### United for Sustainability
Nov 2024 to Present

**Developer** · Student club — Aachen, Germany

- Designing and building the club's website to strengthen its online presence and member engagement.
- Organizing presentations and sustainability initiatives to grow membership.

### TOBB ETU GO Team
Sep 2018 to Apr 2024

**Member** · Student electric vehicle team — Ankara, Turkey

- Developed a battery management system (BMS) in C, comparing implementation approaches for efficiency in electric vehicles.
- Researched electric motor designs, secured sponsorships and represented the team at trade fairs.

## SKILLS AND LANGUAGES

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|---|---|
| **Hardware and embedded** | FPGA design (Verilog, VHDL), ZYNQ, PYNQ, C, C++ |
| **Programming and data** | Python, MATLAB, OpenCV, JavaScript, Perl, HTML, Power BI, generative AI tools |
| **Modeling and optimization** | MILP, rolling horizon scheduling, AnyLogic 8 (simulation) |
| **Electrical design** | EPLAN P8, AutoCAD |
| **Business tools** | SAP, MAXQDA, Microsoft Office |
| **Languages** | Turkish (native) · English (C1) · German (B1) |

*Reference letters from Siemens, Eaton and Bozankaya available on request.*