

Burak Menteşoğlu

brkmentesoglu@gmail.com | +90 538 790 2340 | linkedin.com/in/burak-mentesoglu | github.com/burakmentesoglu | Istanbul

PROFESSIONAL SUMMARY

M.Sc. student in Computer Engineering at Bogazici University with a **B.Sc. in Electronics and Communication Engineering** from Istanbul Technical University, combining strong software engineering fundamentals with domain knowledge in semiconductor and digital hardware workflows. Experienced in developing **Python automation scripts**, modular data processing pipelines, and analytical software solutions alongside hands-on proficiency in **C++**, **C**, **SQL**, and **Bash**. Solid foundation in **object-oriented programming (OOP)**, **data structures and algorithms**, **relational databases**, and modern development environments (**Linux/Unix**, **Git**, **GitHub**, **Docker**), with practical experience in software testing, validation, and technical documentation.

EDUCATION

- M.Sc. in Computer Engineering** 2026 – Present
Bogazici University Istanbul
- B.Sc. in Electronics and Communication Engineering** 2022 – 2026
Istanbul Technical University Istanbul

EXPERIENCE

- ITU Quantum Systems and Security Laboratory** 2026 – Present
Undergraduate Researcher – Software Pipelines & Data Systems Istanbul
 - Developed automated, end-to-end software pipelines and utilities in **Python** to ingest, validate, and process multi-channel sensor data streams, ensuring high **data integrity** and system reliability.
 - Implemented modular automation scripts for data cleaning, anomaly filtering, and **feature extraction**, streamlining engineering analysis and eliminating manual preprocessing bottlenecks.
 - Built, tested, and validated predictive software models on structured datasets using **Python (Pandas, NumPy, Scikit-learn, PyTorch)**, maintaining comprehensive documentation and performance benchmarks.
- Bogazici University BOUNTENNA Laboratory** Jan 2026 – Feb 2026
Research Intern – Engineering Simulation & Data Analysis Istanbul
 - Developed antenna prototypes for wearable communication systems as part of senior thesis research; automated the analysis of engineering simulation datasets to optimize radiation, gain, and impedance parameters.
 - Conducted experimental verification, data validation, and quantitative performance evaluations for wireless systems, documenting test results to support reliable hardware-software integration.
- TUBITAK BILGEM** Jul 2025 – Aug 2025
Digital Design Engineering Intern Gebze, Kocaeli
 - Contributed to semiconductor and digital design workflows including **RTL design**, synthesis, and simulation using **Verilog** and **SystemVerilog**, analyzing timing and performance metrics across processor architectures.
 - Modeled data-path and control units for a foundational **RISC-V** processor architecture; collaborated within structured development workflows using **Git** for version control, code management, and technical documentation.
 - Implemented, tested, and verified core digital logic modules on **FPGA** boards through systematic validation and verification procedures.

PROJECTS

- Analyzing Academic Career Success and Determinants with Deep Predictive Modeling** | *Python, Pandas, Scikit-learn, PyTorch*
 - Engineered modular data processing pipelines and automated evaluation utilities in **Python** across **50K+** structured academic records to extract and analyze key performance metrics and network indicators.
 - Developed, tested, and validated self-attention predictive models (*Cls-Fellow* and *Reg-Fellow*), translating complex multi-variable datasets into reproducible quantitative outputs.
- Sentiment Analysis and Trading Strategy Modeling in Cryptocurrency Markets** | *Python, MATLAB, NLP, Time-Series Analysis*
 - Built an automated text processing and data extraction pipeline in **Python** to clean, structure, and quantify sentiment metrics across **1M+** social media data streams using Natural Language Processing (NLP).
 - Integrated structured sentiment indicators with historical **time-series data** in **Python** and **MATLAB** to automate trend evaluation and validate rule-based decision strategies.
- Non-Invasive Diabetes Detection via Battery-Free Biosensor and CSI-Based AI System (Senior Thesis)** | *Python, PyTorch, ESP32, Wi-Fi CSI*
 - Developed a hardware-software data acquisition system using **ESP32** microcontrollers and battery-free RFID biosensor tags for automated breath acetone data collection.
 - Implemented signal processing and filtering scripts in **Python** for high-dimensional Channel State Information (**CSI**) streams; trained and validated **deep learning** models for concentration estimation.

TECHNICAL SKILLS

- Programming & Scripting:** Python, C++, C, SQL, Bash, MATLAB, Verilog, SystemVerilog
- Software Engineering & DevOps:** Object-Oriented Programming (OOP), Data Structures & Algorithms, Git, GitHub, Linux/Unix, Docker, VS Code
- Databases & Data Pipelines:** Relational Databases, SQL (Joins, Window Functions, Aggregations), Automated ETL Pipelines, Data Validation
- Semiconductor & Hardware Workflows:** RISC-V Architecture, RTL Design & Simulation, FPGA Verification, ESP32
- Software Libraries & AI:** Pandas, NumPy, SciPy, PyTorch, Scikit-learn, TensorFlow, Matplotlib, Seaborn, Plotly
- Analytics & BI Tools:** Exploratory Data Analysis (EDA), Statistical Modeling, KPI & Metric Analysis, Power BI, Tableau
- Languages:** English (Full Professional), Turkish (Native)

CERTIFICATIONS

- Harvard CS50: Computer Science** (Harvard) | **Aspire Leaders Program** (Harvard) | **MATLAB for ML & DL**

VOLUNTEERING & LEADERSHIP

- Street Animal Caretaker:** Volunteered for the care, welfare, and feeding logistics of stray animals.