Berke Tunc

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Education

The University of Manchester — Manchester, UK
BSc (Hons) Computer Science and Mathematics — Expected First Class — *Sep. 2025 – June 2028*
Relevant Coursework: Mathematical Foundations and Analysis, Probability, Statistics, Data Science, Programming I/II

FMV Isik Erenkoy Highschool — Istanbul, TR
International Baccalaureate Diploma Programme — *2020 – 2025*
Higher Level: Mathematics Analysis & Approaches, Physics

Sabancı University — Istanbul, TR
Summer School Program — *Jul 2024*
- Completed modules in Machine Learning, Artificial Intelligence, and Data Science.

Experience

Control Junior Engineer — Manchester, UK
Manchester Stinger Motorsports | Formula Student — *2025 – Present*
- Developed control algorithms for an autonomous race car, improving trajectory tracking accuracy by **80%**.
- Integrated perception planning control stack, reducing average response latency by **18 ms**.
- Optimized module communication and data flow with vision, cutting delays by **15%** and improving reliability.
- Conducted post-run analysis on telemetry from **40+ autonomous test runs** to diagnose stability and controller behavior.

Nonlinear Time-Series Data Analysis - Research Paper (Co-Author) — Istanbul, TR
Yeditepe University | Presented at CHAOS 2025 International — *May 2024 – Jun 2025*
- Performed nonlinear time-series analysis on environmental datasets across **5 cities** and **3 years**.
- Applied mathematical and statistical modelling to evaluate system sensitivity and chaotic dynamics.
- Co-authored a research paper; contributed to data analysis, methodology, and reviewed **20+ academic sources**.
- Developed Python pipelines for automated preprocessing and visualisation, decreasing manual work by **40%**.

Software Engineering Intern — Istanbul, TR
BASARSOFT — *Jul 2024 – Aug 2024*
- Facilitated large-scale GIS data validation for city-scale mapping projects covering **21 million door number**.
- Improved data integrity across 3 internal systems, reducing error frequency by **40%**.

Projects

ML Stock Trend Predictor | *Python, XGBoost, AlpacaAPI, pandas-ta, Git* — Jan. 2026 – Present
- Engineered an automated ETL pipeline using **XGBoost** to predict short-term price direction for high-volatility equities (NVDA, AAPL) with **¿90% confidence** intervals.
- Integrated **Market Context** by merging S&P 500 (SPY) returns with stock-specific data to evaluate relative strength and filter out systemic market noise.
- Developed **7+ technical feature sets** including Bollinger Bands, RSI, SMA Crossovers, and overnight price gaps using advanced signal processing libraries.
- Optimized model performance through custom target thresholds (0.5% move) and shallow tree regularization, achieving a **53%+ accuracy** on chaotic time-series data.

Weathify | *HTML/CSS, MySQL, PHP* — Sep. 2025 – Present
- Introducing a full-stack music recommendation web app with context-aware suggestions.
- Implementing a tag-based scoring algorithm ranking songs by relevance, using SQL query.
- Building a relational MySQL database optimised for fast scoring, querying, and anonymised user data.
- Designing a role-based authentication system with separate user and admin dashboards for content and tag management.

Technical Skills

Languages: Python, C/C++, SQL, JavaScript, HTML/CSS, PHP
Frameworks: React, Node.js, Flask, WordPress, AlpacaAPI
Developer Tools: Git, Google Collab, VS Code, PyCharm
Libraries: pandas, NumPy, Matplotlib