Burak Erdil Biçer

Paris, France | +33 7 45 02 60 70 | burakerdilb@gmail.com | linkedin.com/in/burakerdilb

Education

Sorbonne Université - Faculty of Science and Engineering *2025 – 2026*
M.Sc. Waves and Devices for Advanced Wireless Communication Systems (M2) Paris, France

Istanbul Technical University (ITU) *2020 – 2025*
B.Sc. Electronics and Communications Engineering (GPA : 3.57/4) Istanbul, Turkey
B.Sc. Aeronautical Engineering - Double Major (GPA : 3.37/4)

Research Experience

Graduate Researcher *September 2025 – Present*
Laboratory of Electrical and Electronic Engineering of Paris (GeePs) Paris, France

- Designing a radial bull-eye leaky-wave antenna to achieve high-directivity broadside radiation for aeronautic applications.
- Analyzing the periodic structure's dispersion characteristics using an in-house Method of Moments (MoM) solver to suppress the open stop-band at broadside.
- Developing an impedance matching network to ensure efficient power transfer from rectangular and circular waveguide feeds to the antenna.
- Implementing tapering of the radial periodicity in the antenna's design to reduce sidelobe levels (SLL) and enhance overall directivity.

Undergraduate Research Assistant *September 2024 – June 2025*
ITU Medical Devices Research & Application Lab. Istanbul, Turkey

- Co-led a senior-design project to create a portable microwave-imaging system for bedside monitoring of brain haemorrhage.
- Designed and simulated a 16-element 900 MHz circular dipole antenna array in HFSS, ensuring $S_{11} < -10$ dB and minimal mutual coupling.
- Formulated a dielectric matching medium that boosted tissue penetration and reduced interface reflections.
- Implemented a Python pipeline using TSVD-based inverse scattering for real-time image reconstruction and adaptive noise filtering. Simulated five haemorrhage scenarios, achieving clear lesion localisation and growth tracking.

Undergraduate Research Assistant *September 2024 – June 2025*
ITU Aerospace Research Center (ITU-ARC) Istanbul, Turkey

- Designed and simulated a 2×2 microstrip patch phased-array antenna for 2.4 GHz aviation purposes using HFSS.
- Designed an interdigital capacitor to provide phase shift for beam-steering using MATLAB.
- CNC-fabricated the array and a passive interdigital-capacitor phase shifter on FR-4.
- Implemented a 0.52 rad phase offset to steer the main beam ≈ 35° off-broadside without mechanical motion.
- Verified beam-steering performance with HackRF SDR far-field tests and reliable data transmission.

Undergraduate Research Assistant *November 2022 – June 2023*
Bountenna Antennas & Propagation Research Lab. (Boğaziçi University) Istanbul, Turkey

- Contributed to the development of biodegradable sensor and phantom design for IoHT applications.
- Gained expertise in computational electromagnetics programs such as ANSYS HFSS and CST.
- Conducted parametric analyses on slot antenna to evaluate the effects of slot length, substrate height, and feed offset on resonant frequency and bandwidth using ANSYS HFSS.
- Optimized antenna design to achieve a targeted resonant frequency of 2.45 GHz thus improving bandwidth and return loss.
- Gained experience with fundamental antenna measurement devices such as vector network analyzer, spectrum analyzer, and anechoic chamber. Implemented LaTeX to create technical reports and publications.

Work Experience

Machine Learning Engineering Intern *August 2023 – September 2023*
Baykar Technologies Istanbul, Turkey

- Utilized computer vision libraries, including OpenCV and TensorFlow, to develop robust algorithms for object detection, recognition and quality control to improve the efficiency of the production line.
- Worked proficiently in Python, utilizing Jupyter Notebooks and IDEs such as PyCharm for coding, debugging and testing computer vision algorithms.

Test Engineering Intern *June 2023 – July 2023*
Aselsan Ankara, Turkey

- Researched and optimized UART communication protocols for efficient data transfer.
- Engaged in a project involving LoRa E32 modules and Arduino Uno to establish long-range communication.
- Created an intuitive C# interface for easy customization of LoRa E32 parameters including UART rate, parity, and power.

– Implemented emerging technologies such as AGI and LLMs to improve code generation and debugging to improve project efficiency.

Software Engineering Intern (Long-Term) *November 2022 – May 2023*
Turkish Aerospace Istanbul, Turkey

– Developed bootcamp applications in C and C++ to enhance my programming skills, gaining valuable hands-on experience in software development.
– Participated in and successfully completed a series of certifications in machine learning and systems engineering.

Academic Projects

Impedance Matching of Radial Bull-eye Antennas | GeePs *Present*
Monitoring of Brain with Microwave Imaging | Electronics and Communication Eng. Graduation Project *Jun 2025*
Phased Array Antenna Design Using Interdigital Capacitor | Aeronautical Eng. Graduation Project *Jun 2025*
Flower Recognition Using Convolutional Neural Network | Neural Networks Course *Jun 2024*
Dual-Band Circularly Polarized Annular Ring Patch Antenna Design | Antennas Course *May 2024*
Machine Learning Models for Heart Attack Prediction | Neural Networks Course *Jan 2024*
Two-Stage CMOS Operational Amplifier Design | Analog Electronics Course *Jan 2024*
Wearable Devices for Real-time Monitoring the Labor: Predictor of Preterm Labor | Medical Devices Course *Jun 2023*
Machine Learning Approaches in Bioengineering for Biosignal Processing | Machine Learning Course *Jun 2023*
The Effects of the Physical Properties of the Slot Antenna | Bountenna Antennas & Propagation Research Lab. *Feb 2023*

Publications

[1] B.E. Biçer, I. Shayea, "Machine Learning Approaches in Bioengineering for Biosignal Processing," *Authorea*, 2023.

Certifications

Exploiting Symmetries in Artificial Materials for Antenna Applications | European School of Antennas *Sep 2025*
Evalang French Test (A2) | France Education International *Aug 2025*
GRE Overall Score: 315 (Q: 168, V: 147, A:3.5) | Educational Testing Service *Nov 2024*
TOEFL iBT 101/120 (CEFR: C1) | Educational Testing Service *Sep 2024*
Machine Learning Specialization | DeepLearning.AI *Sep 2023*
Advanced Learning Algorithms | DeepLearning.AI *Sep 2023*
Introduction to Deep Learning | Global AI Hub *Jun 2023*
Introduction to Machine Learning | Turkish Aerospace *May 2023*

Activities

Editor in Chief *September 2022 – June 2024*
arı24 Student Media Istanbul, Turkey

– Ensured high-quality, relevant content for university students in the largest student media initiative in Turkey.
– Implemented editorial standards, created original content, and managed timely school event reporting.

Member *November 2022 – June 2023*
IEEE AP/MTT/EMC/ED Turkey Joint Chapter Istanbul, Turkey

– Reached out to leading researchers in the field and arranged academic talks.
– Assisted in organizing technical sessions and networking events to connect students and researchers.

Coordinator/Competitor *August 2017 – September 2021*
World Cube Association Istanbul, Turkey

– Organized and competed in the official WCA competitions all around the world.
– Achieved success in international competitions.
– Broke many Turkish national records including the most famous 3x3 Rubik's Cube.

Skills

Programming Languages: Python, C, C++, C#, MATLAB
Software Tools: ANSYS HFSS, CST, Altair Feko, ADS, AWR, KiCad, LTspice, SolidWorks, CATIA, MS Office
Languages: Turkish (Native), English (C1), French (A2)