

Enes Aytuğ Kır

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Research Interests

Applied Mathematics&Physics, Complex Systems, Digital Design, Electrical Machines, and Power Electronics.

Education

Istanbul Technical University (ITU), Istanbul, Türkiye B.Sc. in Electrical Engineering Minor in Physics Engineering GPA: 3.36 Year: Senior (4th year)	2024 – Present
Piri Reis University, Istanbul, Türkiye B.Sc. in Electrical & Electronics Engineering (Transferred to ITU)	2022 – 2024

Experience

Undergraduate Researcher Advisor: Assoc. Prof. Ozan S. Sariyer Project: Aggressive Lane-Changers Cause Increased Emissions In Traffic	2024 – Present
• I completed the EPFL online course “Introduction to Traffic Flow Modeling and Intelligent Transport Systems.” • I conducted a literature review on traffic dynamics, driving behavior, and modeling. • I developed a MATLAB code that includes lane-changing, car-following, and emission models to analyze the impact of driver behavior on traffic dynamics and emissions. • The paper is currently in the writing phase.	
Summer Internship at Enerjisa	July 2025 - August 2025
• Analyzed SCADA datasets from 2024 and 2025 to detect and address persistent system faults across different regions. • Designed a fault location estimation program in C++, which calculates phase-to-phase faults with high accuracy.	

Technical Skills and Languages

Programming/Simulations: MATLAB, C/C++, Logisim, Simulink, PLECS
Language: Turkish (Native), English (Fluent)

Project

Boost Power Factor Correction (PFC) Converter
<https://enesaytug.github.io/pfc-converter-project/>

If it asks for a username and password, press cancel.

- This was the term project for ELK453E (Industrial Applications of Power Electronics).
 - This website was designed using Claude Code Sonnet 4.6, Google Antigravity (Gemini Pro 3.1), and ChatGPT 5.5.
 - Our system still has some issues with the input current THD. We observe 4.4% at times, but it fluctuates up to 12%. Additionally, our crossover frequencies could not achieve the targeted values. However, the system can be considered stable based on the generally low THD, steady 400V output voltage, and our phase margin values.
 - For future studies, the crossover frequency can be adjusted by retuning the PI values.
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Academic Programs

Kadir Has University Winter School

2024

- Successfully completed introductory courses in 'Brain Science, Artificial Intelligence and Neuroscience,' as well as 'Physical Networks, Complex Systems, Chaos, and Control.'

Nesin Math Village

2024

- Completed courses on 'Introduction to Group Theory,' 'Math for AI,' 'Theoretical Game Theory,' 'Dynamics and Chaos,' 'Synchronization in Complex Networks,' and 'Introduction to Geometric Topology.'