

Emre Dincer

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PROFILE

Electrical and Electronics Engineer specializing in embedded systems, power electronics, battery management systems, automotive and defense electronics, wireless technologies, and high-efficiency power conversion. Experienced in the design and development of intelligent electronic systems using **Altium Designer**, **C/C++**, **MATLAB**, and **LTspice**, with hands-on expertise spanning high-voltage battery systems, FET-based power-path control, **DC/DC** converters, motor drives, wireless power transfer, and embedded hardware-software integration. My research and engineering work has contributed to **IEEE** publications covering lithium-battery power-path controllers, smart and secure Battery Management Systems, **CANBus** security, AI-assisted battery diagnostics, software-defined automotive architectures, secure optical communication, edge-based state estimation, wireless charging, and predictive maintenance. I have worked with communication interfaces and automotive/industrial protocols including **CANBus**, **LIN**, **FlexRay**, **RS232**, **RS485**, **SPI**, **UART**, and related embedded interfaces, enabling reliable integration across distributed electronic systems. My development approach incorporates relevant **MIL-STD**, **IPC**, **ISO**, and **IEC** requirements, with particular emphasis on reliability, safety, **EMC/EMI**-aware hardware design, and robust system integration. I have also contributed to **UAV** motor-driver and power-electronics development through both university engineering teams and professional projects. Alongside industry experience, my master's studies at **Gebze Technical University's Institute of Defense Technologies Defense Electronics Engineering** have strengthened my focus on advanced embedded, **RF**, **SDR**, **electronic warfare**, **SATCOM**, and **defense-electronics systems**. International R&D projects, technical publications, conference presentations, and cross-functional engineering collaborations have further developed my technical leadership, project coordination, and professional English communication capabilities.

WORK EXPERIENCE

Embedded Systems Engineer

Togi Teknoloji - Bilişim Vadisi

05/2023 – Present Kocaeli, Türkiye

- Developed lithium battery designs, which improved overall efficiency and performance in energy storage solutions.
- Architected battery management systems, ensuring reliable operation and safety across various embedded systems applications.
- Conducted thorough circuit analysis and simulation, helping to identify potential issues early in the design process and enhancing product reliability in embedded systems.
- Led testing and integration efforts, which validated system functionality and performance against industry standards.
- Designed electronic hardware components, resulting in innovative solutions that met strict project specifications and client requirements.

EDUCATION

Engineering of Defence Electronics | Master of Science, MSc

Gebze Technical University

08/2025 – present Kocaeli, Türkiye

- Developed next-generation defense technology products through in-depth research, which enhanced capabilities in optics, electronics, materials science, and software technologies. Focused on key areas such as electronic warfare, signal processing, satellite communications, ground-penetrating radar, and machine learning, which are crucial for modern defense systems.

Electrical Engineering | 3.13/4

Kocaeli University

09/2018 – 01/2024 Kocaeli, Turkey

- During my studies, I published several scientific papers and graduated with high honors.

✓ CERTIFICATES

Development and Adaptation Training for Electric Vehicle Battery Maintenance and Repair Operations

Ministry of National Education of Republic of Turkey

12/2023

17389120230085073234

MEB0917389120230085073234

Circuit Analysis and Design with OrCAD/PSpice

Udemy

04/2023

<https://www.udemy.com/certificate/UC-d9c8044d-d95c-4ec2-a26f-80dbf4e22f73/>

Learn Altium Designer and Design Hardware(PCB)

Udemy

11/2022

<https://www.udemy.com/certificate/UC-c726b323-a1ff-42ce-88b2-721c3dac1df6/>

Hardware Design Engineering with Altium Designer

Udemy

08/2022

<https://www.udemy.com/certificate/UC-41fa06b4-743b-47d8-a762-ad3f4fc40160/>

- Completed the Hardware Design Engineering with Altium Designer certification from Udemy, which facilitated the design of the ARM Cortex-based MCU Controlled PIR Detector Card, enhancing project capabilities.

📖 PUBLICATIONS

A Software-Defined Architecture for Secure Optical Communication and Edge-Based State Estimation in Automotive BMS

2026 IEEE International Workshop on Metrology for Automotive (MetroAutomotive)

08/2026

<https://ieeexplore.ieee.org/document/11644628>

DOI: 10.1109/MetroAutomotive69354.2026.11644628

A Robust and Trusted Smart Battery Paradigm: Evaluating Environmental Resilience, CAN Bus Security, and FNN-Based Diagnostics

2026 IEEE International Workshop on Metrology for Automotive (MetroAutomotive)

08/2026

<https://ieeexplore.ieee.org/document/11644670>

DOI: 10.1109/MetroAutomotive69354.2026.11644670

Digital Characterization of Mobility Batteries: An AWS-Based Battery Passport and 4G-LTE Telemetry Implementation

International Conference on Energy Systems 2026 (ICES 2026)

05/2026

ISBN: 978-625-00-6886-1

Multi-Purpose Electronic Contactor Design with High-Side FET Driver, and Insulation Resistance Measurement

4th International Symposium on Automotive Science and Technology (ISASTECH 2025)

09/2025

ISBN : 978-625-00-6598-3

Ontology-Driven Metrology Data Management for Wireless Charging, Battery Management and Predictive Maintenance in Electrical Vehicles

2025 IEEE International Workshop on Metrology for Automotive (MetroAutomotive)

08/2025

<https://ieeexplore.ieee.org/document/11119204>

DOI: 10.1109/MetroAutomotive64646.2025.11119204

PUBLICATIONS

Cloud-aided battery management strengthened with cybersecurity and Artificial Intelligence

The Brussels Institute for Advanced Studies

05/2025

Poster Presentation

 *Cloud-Aided Battery Management Strengthened with Cybersecurity and AI* is showcasing a big picture of how a lithium battery system may be enhanced by cybersecurity and AI features by a harmony of charge and cloud infrastructure from OPEVA project perspective.

Multi-Purpose Electronic Contactor Design with High-Side FET Driver, and Insulation Resistance Measurement

1st BrlAS Conference on Battery Management and Future Technologies – BrlAS Batteries2025

05/2025

Poster Presentation

 *Multi-Purpose Electronic Contactor with High-Side FET Driver and Insulation Monitoring* is a compact solution for power path control and safety.

Design of FET Based Electronic Power Path Controller for Lithium Battery Applications

2024 IEEE 3rd International Conference on Electrical Power and Energy Systems (ICEPES)

09/2024

<https://ieeexplore.ieee.org/document/10653532/>

PROJECTS

Graduate Student Project R&D Member

Design and Development of Ambient Backscatter IoT Communication for Sustainable Environments (DABICSE)

01/2025 – present Gebze, Türkiye

- DABICSE is aimed at developing the underlying communication technology for Internet of things (IoT) applications. As such, it lies at the intersection of innovative technological research and industrial/commercial need for sustainable communication paradigms.
- This project targets a novel, locally-developed ambient backscatter communication system. This system will be designed for diverse applications like environmental monitoring and warehouse automation following a staged approach. Starting with requirement analysis to define user needs and system specifications, it will focus on the physical layer, designing and optimizing the communication signal. The project then progresses to multi-device communication techniques and culminates in hardware development that modulates ambient signals.

Electrical Engineer

Design of a Cloud-Based Energy Platform Focused on Battery Passports for Mobility Applications and Its Implementation in a Modular Battery Station

09/2024 – Present Kocaeli, Turkey

- The objective of this project is to design a cloud-based energy platform that focuses on battery passports for mobility applications. The implementation of this platform in a modular battery station is also a key component of the project.

Demo and Task Leader

OPEVA: OPTimization of Electric Vehicle Autonomy

05/2023 – Present Brussels, Belgium

- The main objective of the OPEVA project is to explore the benefits that can be obtained from the interaction between the multiple actors involved in the modern “mobility experience” in order to optimize the autonomy of electric vehicles in a modern world which also requires consider sustainability and resource optimization.

Electrical Engineering Intern

Design and implementation of a modular, manageable, cloud-connected, plug-and-play lithium battery pack for light electric vehicles

05/2023 – 07/2023 Kocaeli, Turkey

- TÜBİTAK Funded Project

SKILLS

– SIMULATION, DESIGN AND BEYOND

STMStudio

Professional

STM32CubeMX

Professional

Visual Studio Code

Professional

Software Defined Radio

Professional

LTSpice/Cadence PSpice

Professional

Oscilloscope/Digital Multimeter

Professional

Saturn PCB

Professional

CST Studio Suite

Professional

RF and EMI/EMC Tests

Professional

High-Speed PCB Design

Professional

AWR Design Environment

Professional

Altium Designer/Circuit Designer

Professional

ARM Keil MDK

Professional

MATLAB/Simulink

Professional

Linux and Linux Kernel

Professional

STM32CubeProgrammer

Professional

Hand Soldering SMD, SMT/THT

Professional

Power Supplies/Electronic Loads

Professional

– SOFTWARE LANGUAGES

C/C++

Professional

Assembly

Professional

HTML/CSS

Professional

MATLAB/C#

Professional

VHDL/Verilog

Professional

Phyton/MicroPhyton

Professional

REFERENCES

Tolga Baykal

Togi Teknoloji

The phone number will be shared upon request.

Dr. Muhammad Sohaib Jamal Solaija

Gebze Technical University

The phone number will be shared upon request.

Prof. Dr. Ali Bekir Yildiz

Kocaeli University

The phone number will be shared upon request.

★ STRENGTHS

Analytical Thinking

Problem Solving

Technical Leadership

Cross-Functional Collaboration

Effective Communication

Research Orientation

Innovation

Project Coordination

Reliability Focus

Safety Awareness

Adaptability

Attention to Detail

Initiative

Time Management

Teamwork

Strategic Planning

Multitasking

Creativity

Perseverance

Client Focus

Research Excellence

Presentation Skills

International Collaboration

Technical Writing

Leadership Initiative

HOBBIES



Exploring distant lands



Getting lost in a good book



Capturing moments



Feeling the music



Creating the music



Playing bass and drums