

Doruk Tan ATILA

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SUMMARY: Electronic engineering graduate with 1st Class Honours, various projects and research experiences. Passionate about **computer architectures** (digital/analog), **embedded systems** and **materials science** with a niche interest in **neuromorphic computing**. Seeking full-time opportunities in these fields.

EDUCATION

Electronic Engineering — <i>Bachelor of Engineering</i> The University of Manchester, Manchester, UK	SEPT 2021 - JUNE 2024 1st Class Honours
<ul style="list-style-type: none">• Relevant coursework: Microelectronic Components, Digital System Design, Computer Systems Architecture, VLSI Design, C Programming, Microcontroller Engineering 1&2, Embedded Systems	
High School Diploma The American Robert College of Istanbul, Turkey	SEPT 2016 - JUNE 2021 GPA: 88.03/100

PUBLICATIONS

A Novel Approach to Modelling of MOS Devices – Development of a Simulation Tool for MOSFET Analysis 2024

Available in GitHub

- Undergraduate final year dissertation project
- Skills: **MOSFET, Modelling, Solid State Physics, Simulation, C++**

“Organic phototransistors and their applications as artificial synapses,” Sens Actuators A Phys, vol. 371, p. 115311, 2024, doi: <https://doi.org/10.1016/j.sna.2024.115311>.

Published in Sensors and Actuators A: Physical

- Skills: **Research, Materials Science, Organic Electronics, Artificial Synapses, Neuromorphic Computing, Spin-coating, PVD, OFET**

PROJECTS

Undergraduate Final Year Project — <i>MOSFET Modelling and Simulation</i>	SEPT 2023 - MAY 2024
<ul style="list-style-type: none">• Derived a MOSFET model from quantum-mechanical semiconductor physics foundations and built a standalone C++ program capable of simulating the output and transfer curves of a MOSFET with manufacturing parameters.• Skills: C++, Qt, MOSFET, Solid State Physics, Modeling, Simulation, Semiconductor Device, OFET	
Coursework — <i>Organic Phototransistor Array for Infrared Imaging</i>	MAY 2024 - MAY 2024
<ul style="list-style-type: none">• Designed an organic phototransistor array for infrared imaging using a conjugated polymer from literature, incorporating filter arrays to detect NIR, SWIR, MWIR, and broadband wavelengths for precise detection of specific infrared bands.• Skills: Sensor Design, Signal Conditioning, Imaging Sensors	
Coursework — <i>Cache Simulator</i>	APR 2024 - APR 2024
<ul style="list-style-type: none">• Coded a cache simulator capable of simulating given memory trace file for different cache configurations.• Skills: C, Cache	
Coursework — <i>Concurrent Systems</i>	NOV 2023 - NOV 2023
<ul style="list-style-type: none">• Coded a simulation of a four-by-one hundred-meter sprint relay race. The project involved creating threads, synchronizing threads, and ensuring thread safety.• Skills: C++, Multithreading	
Coursework — <i>Microcontroller-Peripheral Communication I2C/SPI</i>	NOV 2023 - NOV 2023
<ul style="list-style-type: none">• Programmed STM32F401RE microcontroller using low-layer C libraries to enable data transfer between the controller and peripherals.• Skills: Embedded Systems, C, SPI, I2C, Keil uVision	
Embedded Systems Project — <i>Line Following Buggy</i>	SEP 2022 - JUNE 2023
<ul style="list-style-type: none">• Programmed STM32F401RE microcontroller to create a line-following buggy. The system gathered data from six light sensors, determined the line's position, and adjusted the motor speed to center the line using PID control.• Skills: Embedded Systems, C++, STM32, Algorithms	
Coursework — <i>VLSI Design</i>	MAY 2023 - MAY 2023

- Designed a 250nm technology CMOS schematic and layout of a circuit. Optimized the circuit for given speed/power requirements and passed DRC and LVS checks. The circuit implemented a logic boolean expression with 3 inputs.
- Skills: **Tanner EDA, Calibre, CMOS, Very-Large-Scale Integration**

PuzzleThon — *Line Following Buggy*

APR 2023 - APR 2023

- Programmed Nvidia Jetson Nano for a line-following buggy. The algorithm captured front-facing video, processed the image to detect line contours, and utilized PD motor control to align the line as closely as possible to the middle of the buggy.
- Skills: **Python, Robot Operating System (ROS), Embedded Systems, Image Processing**

Coursework — *VHDL Stopwatch*

Nov 2022 - Nov 2022

- Programmed an FPGA in VHDL to implement a functional stopwatch.
- Skills: **FPGA, VHDL, Finite State Machine**

Destination Imagination Tournament — *Building a Cargo Carrying Drone*

JAN 2018 - JAN 2019

- Built a quadcopter capable of carrying cargo as part of the "Destination Imagination" competition Technical category. My team earned 1st place in Turkey.
- My main responsibility was the cargo carrying. To do that, I have coded 2 Arduino boards and connected them via a Bluetooth sensor. One Arduino sent a Bluetooth signal to the Arduino on board which activated/deactivated the electromagnet on the drone. This allowed the drone to carry/drop metal-attached cargo.
- The skeleton was made by cutting spare metal parts. Flight controller hardware pieces were bought, connected, and modded.
- Skills: **Drones, Arduino, Microcontrollers, Embedded Systems, Python, Cabling, Problem Solving**

WORK EXPERIENCE

Arcanor - Istanbul, Turkey — *Data Analyst/Business Developer*

MAY 2022 - JUNE 2023

- Optimized SQL queries and developed an algorithm to query cross-country mobility data
- Coordinated various tasks as part of a startup team, working extensively in product development, documentation, website management, Google services, translation
- Skills: **Data Analysis, Project Management, SQL, Startup Management, Google Services**

Softtech Software Technologies R&D - Istanbul, Turkey — *Intern*

JUNE 2019 - JULY 2019

- Wrote and implemented a Python code for automated and manual drone controlling
- Trained a pattern recognition algorithm in Python to identify a medical disease with software development team members
- Skills: **Simulation, Linux - Ubuntu, Embedded Systems, Python, Machine Learning**

SKILLS

- Programming Languages: C, C++, CUDA, SQL, MATLAB with Simulink, Mbed, VHDL, Python, Assembly
- Software Tools: NI LabVIEW, Tanner EDA Tools, Calibre Verification, Altium Designer, Keil uVision
- Technical skills: Research, Cleanroom Practices, PVD, Spin-coating, Photolithography, Electrical Characterizations

CERTIFICATIONS

- Accelerating CUDA C++ Applications with Concurrent Streams FEB 2023
- Fundamentals of Accelerated Computing with CUDA C/C++ JAN 2023