

ABDELRHAMAN KHALAFALLA

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EDUCATION

Cyprus International University

Bachelor of Science in Electrical and Electronic Engineering
Electronics and Communication Track

Haspolat, Lefkoşa, North Cyprus

CGPA 3.19

Awards & Honors: Faculty Of Engineering Honors List, CIU-WINDCOM First Place Developer
SET EVENT: CIU MATLAB CODEATHON BEST INNOVATIVE PROJECT AWARD

WORKING KNOWLEDGE AND SKILLS

- | | | |
|--------------|-------------------|----------------------------|
| • Python | • LTspice | • PowerWorld Simulator |
| • HTML | • KiCad | • MATLAB |
| • CSS | • Altium Designer | • C Programming language |
| • JavaScript | • AutoCAD | • PLC Programming language |

PROJECTS

AI Prosthetic Hand Controlled Via The Peripheral Nervous System

February 2024 – July 2024

- Designed the 3D model of the Prosthetic Hand using TinkerCad software and Cubicon Single-Plus Printer to print all the required parts Using PLA printing Material for printing, ensuring it is wearable for amputation people.
- Developed an Signal acquisition system using the MyoWare 2.0 Muscle Sensor to detect the EMG signals from the targeted muscles for different gestures and convert them to electrical signals to control the prosthetic hand via Servo motors.
- Developed a Machine Learning model using Python and TensorFlow to classify the EMG signals and control the prosthetic hand to perform the desired gesture.
- Acquiring EMG signals for 9 different gestures from different volunteers to train the Machine Learning model, and testing the model on different volunteers to ensure the model's accuracy.

Techno-Economic Analysis of Standalone off-Grid Smart Parking lot in a Smart City

March 2023 – May 2023

- Developed a sustainable solution to address the global energy demand, Focusing on a smart parking area with EV chargers, contributing to a 100% sustainable smart city initiative.
- Designed a standalone off-grid solar system to power the parking lot, using HOMER Grid Software to optimize the system's size and components to maximize efficiency and minimize costs.
- Conducted a techno-economic analysis to evaluate the system's performance, considering factors such as the initial investment, operational costs, and payback period to determine the system's feasibility and sustainability.

Frequency Response Of 2-Stage Common Emitter Amplifier

May 2023 – June 2023

- Designed a 2-STAGE Common Emitter Amplifier Circuit using LTSPICE Simulator, Focusing on achieving stable performance for both DC and AC operations to understand how coupling, bypass, wiring, And parasitic capacitors effects the amplifier's performance.
- Conducted AC analysis by applying different AC signals to evaluate the amplifier's behavior across different frequencies, measured its gain in decibels (dB) to determine the amplification factor, and generated Bode plots to visualize magnitude and phase responses over the frequency range.
- Applied Miller's theorem to analyze the effect of feedback capacitances, identified low-pass and high-pass filter characteristics, and determined the locations of poles and zeros to understand the frequency-dependent behavior of the circuit.

Line Following Robot

December 2023 – January 2024

- Designed a Line Following Robot that autonomously tracks lines using a PID controller for precise navigation, integrating the QTR-8RC Sensor Array to detect lines and determine the robot's position relative to the path.
- Conducted tests on different track configurations and environmental conditions to ensure robust performance.
- Combined robotics mechanics with advanced control theory to enable effective autonomous navigation.

WORK EXPERIENCE

Turkish Cyprus Electrical Corporation

August 2023 – October 2023

- Worked in the Power System Department, where I learned about the power system structure and quality measurement techniques for power systems, applying the symmetrical and unsymmetrical faults analysis to the power system to see the faults that may occur in the power system.
- Automated an entire production line using PLC Programming language, in order to increase the production efficiency and reduce the human error.
- Maintained and repaired the electrical equipment in the production line to ensure the production line's efficiency.

TurkCell

June 2023 – July 2023

- Worked in Switch Department, where I learned about the GSM network structure and quality measurement techniques for GSM such as Frequency Division Multiple Access (FDMA) and Time Division Multiple Access (TDMA).

PROFFESIONAL AFFILIATIONS

Faculty of Engineering Department Representative

December 2022 – November 2023

- Represented the department of Electrical and Electronics Engineering in Student Council, advocating for student needs and concerns.

Electrical and Electronics club General Secretary

October 2022 – June 2024

- Organized Club activities Such as Panels, Seminars, and WorkShops, ensuring that the club's goals were met.
- Introducing the new students to the club's activities and goals.