

KHUZAIMA ALI KHAN

E L E C T R I C A L E N G I N E E R



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📍 Gulistan-e-Jauhar, Karachi.

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SKILLS

- Programming / Simulation (Python, C++, MATLAB, Simulink, PSSE, PSpice, LTSpice, PLECS, DSA, OOP, Vivado, FPGA Basys-3 Board, Arduino, TivaC, Keil uVision5, and Energia)
- Power System Analysis and Designing.
- Computer Aided Design.
- FPGA-In-Loop / HIL simulations.
- Data Structure and Algorithms.
- Problem-Solving.
- Computer Literacy (MS Office, LaTeX, Video editing (Movavi)).
- Project Management.
- Strong Communication (Bi-Lingual).
- NODE-RED, ThingSpeak, ThingsBoard, and Ubidots.
- Teacher Assistant at Habib University.

EDUCATION

BACHELORS IN ELECTRICAL ENGINEERING

Habib University
2020 - present

3.82 CGPA
GCE A'LEVELS

Credo College
2018 - 2020

1 A*, 2 As

GCE O'LEVELS

Progressive Public School
2015 - 2018

1 A*, 6 As & 2 Bs

PROFILE

Electrical Engineering student at Habib University with a standout CGPA of 3.82, I combine deep technical expertise from my internship at Qistbazaar with proven leadership in coordinating university events and sports clubs. Adept in Python, C++, and emerging technologies like Large Language Models, I excel in team-oriented environments, bringing a blend of innovative problem-solving and effective communication skills to drive collaborative success in technical roles.

PROJECTS

CHEMICAL FORMULAE GENERATOR

Python Project

- Used the ideas of chemistry.
- User gets chemical formulas for different organic compounds.

MUSIQUE PLAYER

Data Structures and Algorithms

- Contained genre of music.
- One can play different genres on an interactive interface.

LOGIC MATES

Digital Logic and Design

- Keyboard interfaced ball player.
- Need to collect blue balls to gain lives, while avoiding red balls (enemies)

HU METAL MANIA

Object Oriented Programming

- Two tanks fighting each other.
- With weapons as object being targeted at each other.
- The first to loose five lives, loses.

ATOM (REMOTE-CONTROLLED FIGHTING ROBOT)

Micro-controllers & Interfacing

- Manually created 4-wheeled RC car, created using TivaC microcontroller.
- Contained attacking and defense mechanism to win a combat.

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PROJECTS

PICK & PLACE OF A ROBOTIC ARM

Introduction to Robotics

- A six-joint arm recognizing different colored cubes, finding their coordinates in world frame and carrying out pick & place operation for sorting of the cubes.

DC-DC BUCK CONVERTER

Power Electronics

- A 50 W power electronic converter, converting 48V to 12V.

DIFFERENTIAL DRIVE ROBOT ON GAZEBO

Mobile Robotics

- A differential drive robot integrated in a warehouse, with a task to go from one point to other using A* algorithm combined with a controller to go in a desired trajectory.
- It could avoid obstacles and re-trace the path with SLAM utilized for localization.

SIMULATION AND COMPARATIVE ANALYSIS OF SI AND GAN BASED ISLOTED AND NON-ISOLATED CONVERTERS

Final Year Project

- Working on EV-train converters in order to compare the new technology of GaN mosfets over Si mosfets.

RESEARCH INTERESTS

- Power Generation.
- Power Transmission.
- Power Distribution.
- Electric Vehicles.
- Power Electronics.
- Control Systems.
- Renewable Energy Integration.
- Power System Analysis and Optimization.

RESEARCH EXPERIENCE

- Research on rapid prototyping of Isolated Bidirectional Full-Bridge DC-DC Converter Control for Electric Vehicle Applications.
- Conducted research on Silicon (Si) and Gallium Nitride (GaN) based DC-DC Converters under the guidance of Dr. Ishtiyak Makda at Habib University, during the summer of 2023. Along with, publication in INMIC 2023 conference for the work done in this program.

AWARDS AND ACHIEVEMENTS

- 90% academic scholarship in AS Level and 100% Scholarship in A2 Levels.
- Academic Scholarship at Habib University.
- Dean's List Award for Fall 2022.
- Sponsorship Lead in HU Sports Olympiad and ATOMOS science Olympiad.