Aqib Habib

aqibhabib1@live.com +923322768755 Website LinkedIn

EDUCATION

National University of Sciences and Technology, Islamabad, Pakistan — SEPT 2018 - JUNE 2022
Bachelor of Mechanical Engineering with Minor in Computer Science
Major CGPA: 3.79/4.0, Minor CGPA: 3.88/4.0

WORK EXPERIENCE

Turkish Aerospace Industries (Structural Design Engineer) — JAN 2023 - CURRENT

- Designing of **internal structures** and **outer mold lines** in **CATIA V5**
- Developing assemblies, mechanisms, and parts for scaled **5th gen fighter aircraft demonstrator UAV**
- Constructing of 2-D drawings based on **ASME Y14.5 2007 GD&T**
- Prototyping of enclosures, parts, and mechanisms using **FDM 3-D printing**

Facility of Advanced Research and Integrated Systems (Assistant Manager Mechanical) — SEPT 2022 - DEC 2022

- Designed **internal structures** and **outer mold lines** in **Solidworks**
- Researched, analyzed, and manufactured **concept tilt-wing eVTOL UAVs**
- Designed, tested, and analyzed mounts, actuators, and mechanisms
- Constructed 2-D drawings based on **ASME Y14.5 2007 GD&T**
- Manufactured using aluminum, **CFRP, GFRP,** and **FDM 3D Printing**

Dawlance Arçelik (R&D Intern) — JULY 2022 - AUGUST 2022

- Designed and modeled domestic cooling loads and AC systems in **MATLAB/Simscape.**
- Tested and analyzed split AC products in the HVAC Lab

National Engineering Scientific Commission (R&D Intern) — JULY 2021 - AUG 2021

- Researched on **eVTOL UAVs** and flight control systems
- Designed a **fixed-wing eVTOL UAV**

CO-CURRICULAR ACTIVTIES

IMechE UAS Challenge Pakistan (Technical Lead) — MARCH 2021 - CURRENT

- Constructed technical and design criteria and rulebook for the participants
- **Supervised** and **judged the flights** of the participants
- Hosted webinars for the students

SAE Baja Student Competition (Team Captain) — JULY 2019 - JUNE 2022

- Designed, analyzed, and manufactured **off-road Baja Buggy**
- Achieved **4th Position** in business presentations all over the world
- Created the first team from Pakistan to compete in the competition

IMechE Chapter NUST (Technical Executive) — JULY 2019 - OCTOBER 2020

- Designed competition arenas for design challenges
- Programmed Arduino for the competition arenas

SKILLS

Programming
- **MATLAB/Simulink/Simscape** for mathematical models
- **Python and objected-oriented** programming

Mechanical Skills
- **FDM 3D printing** and laser cutting
- **Carbon fibre** wet layup for composite parts
- **CNC manufacturing** of steel/aluminum parts

Analysis
- **ANSYS Mechanical** for FEA Analysis
- **Topology optimization** in ANSYS

Computer-Aided Design
- **SolidWorks, and CATIA V5**, used on various projects involving GD&T, Sheet Metal Design and Surface Modelling
- AutoCAD and SolidWorks were used to draft 2D engineering drawings as per ASME Y14.5 2007

CERTIFICATIONS

Modern Robotics: Mechanics, Planning, and Control Specialization
Aerial Robotics Specialization
Control Design, MATLAB and Simulink
Python Specialization
Industrial Automation with Hydraulics and Pneumatics
Introduction to Finite Element Analysis

HONORS AND AWARDS

75th Celebration of Independence Day of Pakistan Scholarship Program
- Achieved acceptance from **Imperial College London** and the **University of Toronto**

Rector's Gold Medal
- Awarded for best Undergraduate Project

University High Achiever's Gold Medal and Certificate
- Awarded for Positions in Student Competitions

3rd Position at ASME Speed CAD Challenge
3rd position at ASME Team CAD Competition

PROJECTS

Buraaq Hybrid eVTOL UAV System [VIDEO] [PDF] [PROJECT]

- Performed parametric analysis in **MATLAB** and **Simulink**
- Designed, analyzed, and manufactured **CFRP fixed-wing eVTOL UAV**
- Implemented **control systems** using Pixhawk 5x
- Achieved **Rector's Gold Medal** for best undergraduate project

Ababeel V5 Tilt-Wing eVTOL UAV [VIDEO]

- Researched, analyzed, and manufactured concept **tilt-wing eVTOL UAV**
- Designed, tested, and analyzed mounts, actuators, and mechanisms
- Manufactured using aluminium, **CFRP, GFRP**, and **FDM 3D Printing**

3-D Control and Trajectory Planning of Quadcopter

- Designed **PID controller** for 6 DOF quadcopter in MATLAB
- Designed **minimum-snap trajectory** way point navigation in MATLAB

Control of Active Suspension [PDF] [CODE]

- Constructed a mathematical model of the active suspension in **MATLAB/Simulink**
- Compared the results with passive suspension under different road profiles

Vehicle Traction Control [PDF] [CODE]

- Constructed a detailed mathematical model of vehicle and traction control in **MATLAB/Simscape**
- Controlled the desired road slip ratio for traction control

Twin Rotor MISO System

- Designed a **complimentary filter** by integrating gyro and accelerometer
- Designed and implemented a **PID pitch controller**
- Tested and validated the results on the test bench