

MUHAMMAD TALHA IRFAN

@mtalirfan

✉ mtalirfan@gmail.com

🌐 mtalirfan

☎ +92 314 6691351

🌐 mtalirfan.me

📍 Islamabad, Pakistan

🌐 mtalirfan

EDUCATION

National University of Sciences and Technology (NUST)

Bachelor of Mechanical Engineering – CGPA: 3.19.

📅 Nov 2021 – Current

📍 Islamabad, Pakistan

PROJECTS

ME-489 Robot Manipulator

Nov 2024

- Constructed the PUMA560 manipulator using both the Denavit-Hartenberg parameters and Elementary Transforms.
- Defined 8 configurations for the model, plotting trajectories for various combinations.
- Plotted 3 Inverse Kinematics solutions for a set of joint angles.
- Obtained the workspace of PUMA560, graphing 100000 end-effector positions and computing Yoshikawa manipulability index for each.

Text to Braille

Apr 2024

- Developed a Python program taking text input and converting it to UEB, grade 1 uncontracted or grade 2 contracted braille.

RIME-222 Webots Driverless Simulation

Mar 2024

- Programmed controllers, in Python and C++, for navigation system algorithm of a virtual driverless vehicular robot navigating for multiple laps around 3 racetracks of variety.
- Optimised distance sensor thresholds and turn coefficients of robot controller for all tested racetracks, achieving fastest lap times possible in 60x simulation speeds while avoiding collisions.

EE-227 Home Automation System

May 2023

- Implemented a NodeMCU-based DHT11 temperature sensor setup to control a DC fan and a relay.
- Developed a single-page web application hosted on a local web server, utilising HTTP requests and JavaScript DOM manipulation, for manual control and automation for set temperature threshold.

CS-114 Plagiarism Detection Software in C++

Feb 2022

- Developed a C++ program to check similarity of a text file, comparing with 5 source files by counting similar words and phrases, calculating percentages, and outputting a similarity report.
- Optimised the program to handle at most 10000 phrases, improving plagiarism detection for common English language text, and for sample C++ codes achieving 32% greater accuracy.

COURSES

Kaggle Learn

Kaggle – Oct 24

Elements of AI

University of Helsinki – Jun 2024

AI for Good Specialization

DeepLearning.AI – Nov 2023

Mastering 5S and Kaizen

UNAP – Oct 2023

Introduction to Environmental Science

Coursera – Jul 2023

Google Data Analytics

Google – Jun 2023

Renewable Energy Specialization

Coursera – Feb 2023

6 Axis Robot Arm

ASME – Oct 2022

SKILLS

ANSYS Fluent

COMSOL Multiphysics

AutoCAD

SOLIDWORKS

Proteus

LabVIEW

Arduino UNO R3

NodeMCU – ESP8266

C++

Webots

MATLAB – Simulink

Robotics Toolbox for Python

Python

Pandas

Scikit-Learn

Matplotlib

Seaborn

NumPy

SQL

Tensorflow - Keras

HTML 5

CSS 3 – SASS

JavaScript

Version Control – Git

Technical Drawing

Technical Writing

Microsoft Office

5S

Kaizen

LANGUAGES

English – Fluent

Urdu – Native