Umair Naeem

Electrical Engineer

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LinkedIn Profile
Github Profile

Education

National University of Science and Technology(NUST)
BE Electrical Engineering

Government College Univerisity(GCU)
FSc (Pre-Engineering) - Percentage/Grade - 91.09/A+

Research Experience

Optical Network Technologies (ONT) LAB
Wireless Communication Research Assistant: Understanding ORAN, Architecture, Challenges, and Testbeds for SD-RAN Networks under the supervision of Dr. Mati ur Rehman
Worked on Optimal Controller Selection Problem for Vehicular Adhoc Networks in 5G Technology under the supervision of Dr. Huma Ghafoor

Areas of Expertise

Artificial Intelligence(ML)-Data Structures(DSA) - **Network programing** - GPU Programming - High Performance Computing - Data Analytics - **HCIA**

Academic Projects

BCI Controlled Robotic Arm (FYDP)

- Nominated as top 4 Final Year Design Project among 160 Projects for Rector's Gold Medal Award.
- EEG data acquisition: Collect brain signals using standard EEG datasets.
- Pre-processing: Filter and normalize EEG signals for noise reduction.
- Model training: Train deep learning models to classify motor imagery.
- Prediction to command: Map model output to robotic arm control commands.
- Hardware control: Send commands to the robotic arm for real-time movement.

High Performance Computing

- Testing to find how HPC cluster works and finding CPU specs.
- Running a Laplace Solver using large grid sizes to test HPC performance using OpenMP, MPI, and CPU resources.
- Finding how and why the HPC Performs Faster using multi-threading on GPU than on CPU.

Warehouse Robot Path Optimizer

- Find the optimal path using A star Algorithm.
- It Implements Graph based Algorithm to find the Optimal Path

Line Follower Robot

- Microprocessor Integration: Utilizes microprocessor systems like Arduino or Raspberry Pi to control the robot's movement and process sensor data.

- Sensor Setup: Installs and calibrates basic sensors, such as infrared or light sensors, to detect the line on the ground and provide feedback to the microprocessor.
- Control Algorithm: Implements a control algorithm on the microprocessor to interpret sensor data, make steering adjustments, and ensure the robot follows the line accurately.

Hydraulic Turbine

- Mechanical Design: Constructs the Archimedes Screw turbine for efficient water flow and energy conversion.
- Electrical Integration: Incorporates electrical machine components to convert mechanical energy into electrical energy.

Containerzied Weather Application

- A python Application that uses OpenWeatherAPI to get the weather data.
- Used Docker to containerize the application
- Created a pod in minikube using the container image

AI-Powered Virtual Keyboard

- Hand/Gesture Tracking: Uses computer vision (e.g., OpenCV, MediaPipe) to detect and track finger positions for input recognition.
- AI-based Prediction and Correction: Implements NLP models to enhance text prediction, autocorrect errors, and improve typing efficiency.

Prediciting Employee Attrition

- Develop a neural network-based model to predict whether an employee will leave an organization based on employee demographics and job performance data. Build a feedforward neural network using Keras/TensorFlow

Online Courses & Certifications

- Supervised Machine Learning: Regression and Classification Coursera
- Unsupervised Learning, Recommenders, Reinforcement LearningCoursera
- Advanced Learning Algorithms Coursera

Skills

- **Technical Skills: Cisco Packet Tracer, Network Programming,** Docker, Kubernetes, C/C++, python, **Linux, ubuntu, eNSP, HCIA certification training**.
- **Data Visualization:** R, tableau, Excel
- **Digital Marketing:** Project Management, Social Media Optimization, Content Writing

Languages

- **English** [ESL]
- **German** [Basic] - A1