Muhammad Talha Ejaz

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EDUCATION

Columbus State University   **Columbus, GA**
Masters of Science in **Robotics Engineering** *CGPA: 3.8/4.0*   *January 2022- May 2023*
Coursework: Computer Vision, Artificial Intelligence, Kinematics, Evolutionary Computation, Robotics System Design

PAF-Karachi Institute Of Economic Technology   **Karachi, Pakistan**
Bachelor of Engineering in **Mechatronics Engineering** *CGPA: 3.1/4.0*   *January 2015-December 2018*
Coursework: Mechatronics System Design, Linear Control Systems, Robotics and Computer Programming, Computational Neuroscience

PROFESSIONAL EXPERIENCE

Georgia Institute of Technology   *Atlanta, GA*
Summer Research Intern | Python, Node.js, Docker, MongoDB   *May 2023 - Present*
➤ Collaborate on web and app development with **Sci4Ga** and **GRN**, focusing on system integration, utilizing Docker for containerization and deployment efficiency.
➤ Develop and maintain Azure-based web applications with GIS functionality, incorporating ML algorithms for enhanced performance and scalability.
➤ Developed and tested code, documented software applications, resolved technical issues, collaborated with senior leaders, and learning about new technologies.
➤ Optimized the deployment process on Azure for peak performance, resulting in a 90% increase in loading efficiency.

Columbus State University   *Columbus, GA*
Graduate Teaching Assistant | Python, Matlab, C++   *January 2022 - May 2023*
➤ Directed and mentored a team of 18 undergraduate students, providing academic support and overseeing their completion of assigned tasks.
➤ Acted as a liaison between faculty and students, optimizing faculty time and resources, and providing guidance on hardware and software concepts.
➤ Organized and facilitated numerous class presentations and created new course materials as per the direction of the professor.
➤ Mentored and trained 3 junior team members to enhance their programming and communication skills, increasing efficiency and productivity.

Yunus Textile Mills Ltd.   *Karachi, Pakistan*
Trainee Engineer | Autocad, Solidwork, Power BI   *March 2020 - December 2021*
➤ Utilized data-driven analysis to maintain cost control procedures and provided strategic advice to the team based on report findings.
➤ Participated in weekly meetings and presented data-driven production reports to HoD and directors and identifying areas for improvement.

RELATED PROJECTS

Autonomous Navigation with Clearpath Jackal using VLP-16 LiDAR : [Video]   *March 2023*
➤ Created a collaborative mobile robot model equipped with Stereo cameras and **LIDARs** for accurate environment mapping using point cloud.
➤ Developed and integrated the **A*** and **RRT** algorithms to optimize path planning for efficient navigation.
  SLAM . ROS · Python · Perception · Path Planning . Autonomous . Matlab

Deep CNN-Genetic Hybrid System for Obstacle Avoidance :   *November 2022*
➤ Developed a novel Neuro-Genetic hybrid system, which optimized the weights of a neural network and enhanced its performance by using random mutation to escape local minima and deployed it on the Quanser Qcar. Additionally, optimized the training process by utilizing CUDA 11.2
  Genetic Algorithim . Neural Networks . Hyper-parameter Tuning . Crossover . Mutation . IOT

Stock Predictor using Spark MLlib :   *October 2022*
➤ Retrieved financial data using the **AlphaVantage API**, preprocessed the data, and implemented a decision tree classifier to predict stock prices.
➤ Utilized PySpark to create a scalable model and visually represent the data.
  Big Data · ElasticSearch . AWS . Apache Spark · Pyspark · Machine Learning . Decision Tree

Deployed Deep CNN on Quanser Qcar for Self Driving Application: [Video],[Github]   *June 2022*
➤ Developed and deployed a vision-based CNN model for navigation on the Quanser QCAR with **Nvidia Jetson TX2**, using custom training data.
  ML · Python · CNN · Remote Access . Putty · Nueral Network . Autonomous Navigation

CONFERENCE

M.Talha Ejaz , Ammara Zahid, and M.Mudassir Ejaz, **"EEG Based Brain Controlled RC Car with Attention Level"**, *International Virtual Conference on AI for Smart Community,2020*
Perak, Malaysia

SKILLS & TECHNOLOGIES

Programming Languages: Python (Tensorflow, Pytorch,), C/C++ , SQL, Java, MySQL, MariaDB, MongoDB , LaTeX
IDE:: IntelliJ,Jupyter Spyder, PyCharm, Colab, Anaconda, AWS Sagemaker, VSCode
Tools: ROS (Noetic, Melodic), AWS, Azure, GCP, Rviz, Mission Planner, Solidwork, Git, RTAB-Map, ArcGIS, Django, Flask
Data science: Data Visualization, Data cleaning and preprocessing, Statistical Analysis, Pattern Recognition, Machine Learning
Operating System: Windows, Ubuntu (18.04, 20.04),Linux, Raspbian, Mac
Contributing Writer, Medium: https://medium.com/@talha.ej10

ACHIEVEMENTS

➤ Awarded fully funded masters programs at Columbus State University
➤ Awarded **"Employee of the Month"** for the months of March and April in 2021 at **Yunus Textile Mills Ltd**.
➤ Selected for an online **AI Joint Lab Program** in **Autonomous Driving** led by **Koç University, Turkey** in 2020.