Muhammad Talha Ejaz

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: talhaejazh
in: talha-ejaz-hussain

Robotics graduate and System Installation Engineer, seeking a full-time role in robotics software development and systems, open to relocation.

PROFESSIONAL EXPERIENCE

JBT Corporation *(Automated System)*   *Atlanta, GA*
System Installation Engineer - Robotics | Python, Mobile Robotics, SLAM, Control Systems, TwinSAFE, SOPAS   *Feb 2024 - Present*

➤ **Research and Development:** Contribute to research initiatives focused on perception, sensor fusion, and control strategies for AGVs.
➤ **Testing Coordination:** Lead testing efforts, ensuring robust on-vehicle validation of developed systems.
➤ **System Deployment:** Deploy AGVs and peripheral equipment at customer sites; implement and optimize mapping, navigation, and localization systems.
➤ **Documentation and Support:** Develop and document requirements for AGV and ADAS systems; provide comprehensive site support and training.
➤ **Technical Collaboration:** Work with engineering teams to create functional and implementation system diagrams; offer guidance on system architecture, hardware layout, communication protocols, and control strategies.

Columbus State University   *Columbus, GA*
Graduate Teaching Assistant | CodeSys, PLC, Autocad, Solidwork, Power BI   *January 2022 - May 2023*

➤ Guided and mentored 18 undergraduates in software and hardware concepts, achieving a 95% task completion rate.
➤ Conducted hands-on sessions on Linux systems, teaching students the practical applications of ROS for robotics and secure remote access techniques.

Motiventive *(remote)*   *Ontario, Canada*
Artificial Intelligence Engineer | AWS, Deep Learning, DCNN, Tensorflow, Computer Vision, Flask   *July 2021 - December 2021*

➤ Directed a team of 3 AI Engineers in software solutions development, building an emotion detection for enhancing user engagement.
➤ Enhanced processing efficiency by 15% through the implementation of highly accurate and optimized image processing algorithms.

Yunus Textile Mills Ltd.   *Karachi, Pakistan*
Trainee Engineer | Autocad, Solidwork, Power BI   *March 2020 - December 2021*

➤ Optimized production processes through data-driven strategies, significantly increasing monthly production from **9.6 million to 12.1 million** meters.
➤ Performed project management tasks, including scheduling and keeping track of multiple projects.

PROJECTS

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

Deep CNN-Genetic Hybrid System for Obstacle Avoidance :   *November 2022*
➤ Developed a novel Neuro-Genetic hybrid system optimizing neural network weights with random mutation to enhance performance and escape local minima. Successfully deployed this system on the Quanser Qcar, and further improved the training process using CUDA 11.2
    Genetic Algorithim . Neural Networks . Hyper-parameter Tuning . Crossover . Mutation . IOT

EDUCATION

Columbus State University   *Columbus, GA*
Masters of Science in **Robotics Engineering**   *CGPA: 3.9/4.0*   *January 2022- May 2023*
Coursework: Computer Vision, Artificial Intelligence, Kinematics, Evolutionary Computation, Software and 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, Software Development, Robotics and Computer Programming, Computational Neuroscience

SKILLS & TECHNOLOGIES

Programming Languages: Python (Tensorflow, Pytorch, NLTK, GPT-4), C/C++ , SQL, Java, MySQL , LaTeX
Software Development Tools: SOPAS, PyCharm, Colab, Anaconda, AWS Sagemaker, VSCode,
Tools: ROS (Noetic, Melodic), AWS, Azure, Rviz, Mission Planner, Solidwork, Git, RTAB-Map, ArcGIS, Django, Flask
Operating System: Windows, Ubuntu (18.04, 20.04),Linux, Raspbian, Mac. Actively self-learning advanced Linux system administration.
Contributing Writer, Medium: https://medium.com/@talha.ej10

PUBLICATIONS

- **M.Talha Ejaz** , Shokoufeh Davarzani **"A 2D path-planning performance comparison of RRT and RRT* for unmanned ground vehicle"**, *IAES International Journal of Robotics and Automation (IJRA) 12 2024*
- **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*
- Zahid Ullah, Iqrar Hussain, Assia Mahrouch, Kaleem Ullah, Rafiq Asghar, **M. Talha Ejaz**, Minam Aziz, S. Fahad Murtaz, **"A survey on enhancing grid flexibility through bidirectional interactive electric vehicle operations"**, *Journal of Renewable and Sustainable.*
- Kaleem Ullah, Majid Ali Tunio, Zahid Ullah, **M. Talha Ejaz**, M. Junaid Anwar, M. Ahsan, Ritesh Tandon, **"Ancillary services from wind and solar energy in modern power grids: A comprehensive review and simulation study"**

ACHIEVEMENTS

➤ Awarded a fully funded scholarship for master's program at Columbus State University.
➤ Selected for an online **AI Joint Lab Program** in **Autonomous Driving** led by **Koc University, Turkey** in 2020.