Muhammad Talha Ejaz

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Education

Columbus State University
Columbus, GA

Masters of Science in Robotics Engineering ***CGPA: 3.6/4.0*** 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 ***CGPA: 3.1/4.0*** 2015– Dec 2018

Coursework: Mechatronics System Design,Industrial Control Automation, Linear Control Systems, Introduction to Robotics and Computer Programming, Engineer Drawings

SKILLS

Programming Languages: Python, Matlab, C++, Spark, SQL, LaTeX
Tools: ROS (Noetic, Melodic), Gazebo, Rviz, Mission Planner, CoppeliaSim Edu, Anaconda, Solidwork, Visual Studio, Matlab, Git, Dev-C++
Operating System: Windows, Ubuntu (18.04, 20.04), Raspbian

Professional Experience

Graduate Teaching Assistant
Jan 2022 — Present

Columbus State University *Columbus, GA*

- Directed undergraduate students in completing assigned task and support faculty member academic assistance.
- Liaised between faculty and students to optimize faculty time and oversaw students assisted with academic projects.
- Organized numerous class presentation and new course materials as directed by the professor.

Trainee Engineer
March 2020 — Dec 2021

Yunus Textile Mills Ltd. *Karachi, Pakistan*

- Work with contractor, design team ,and other consultants to ensure company project requirements.
- Maintained cost control procedures and analyzed daily reports requests to provide strategic advice to the team.
- Participated in the weekly meetings and presented weekly production reports to HoD and the director

Related Projects

Autonomous Visual Navigation using Deep Reinforcement Learning:
July 2022

- Implemented novel network architecture that boost the learning process.
- Improved the exploratory nature of the agent.

Python, TensorFlow, ROS, Gazebo

Optimal Path Planning with Obstacle Avoidance:
May 2022

- Developed vision-based approach for navigation using CNN.
- Created custom data consist of 2000 images and trained them.
- Deployed the model in the Quanser QCAR equipped with Nvidia Jetson TX2.

ML, Python, CNN, Nvidia, Jetson, Putty, Path Planning

Play Space Invaders Game using Deep Reinforcement Learning:
May 2022

- Implemented Deep Q learning on RAM states as an input, not game screens.
- Achieved optimal and fast computation.
- The project was performed on Google Colab using Python 3.7 version.

Atari, DQN, RAM, CNN

Brain Controlled Miniature Wheelchair:
Dec 2019

- Received brainwaves signal using EEG sensors and classify them.
- Sent the direction to the wheelchair by creating local server and store the data.

IOT, EEG, Brainwaves, Neuroscience

Robotic Arms 3 D.O.F:
Dec 2018

- Built a 3-DOF robotic arm using servo motors.
- Developed and applied PWM on the motors and controlled them using Arduino micro-controller.
- Acknowledged the concepts of End Factor Transmission Matrix (EFTM) for forward and Inverse kinematics.

Arduino, Robotics, Kinematics

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**