Muhammad Fahad

Mechatronic Engineer

Objective: To be a part of a dynamic and progressive institution offering ample opportunities in programming. Seeking a position that will ensure continued professional advancement, offered in an environment in which progress is based on the institutional goals.

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EXPERIENCE

Working Student

Evitado Technologies, Hamburg   *08/2021 – Current*

Projects

- Assisted in tug-based system installation at Airbus and supported in solving technical issues by troubleshooting a variety of hardware and software problems.
- Contributed to streamlined testing of Wi-Fi cards utilizing NVIDIA Jetson AGX Orin, resulting in efficient troubleshooting and reduced time and cost.
- Performed post-hardware update tests to assess power consumption and its impact on system battery life.
- Involved in the testing of steering angle validation for aircraft, employing Ultra-wideband sensors and Python to ensure accurate validation of steering angles during ground operations using a tug.
- Created and maintained an inventory system that tracked hardware and software assets and ensured accurate information updates in alignment with deliveries.
- Refined the system design to incorporate enhancements and expanded functionality while meticulously aligning with project requirements.

Student Research Project

Stadtreinigung, Hamburg   *10/2020 – 03/2021*

Project

"Autonomous Driving and Acting Trash-Can with AI"

- Embedded-system-based project implementing Artificial Intelligence (AI) to develop an idea of an independent trash-can that can drive itself to the central station and empty itself after reaching its full capacity. My responsibilities include the implementation of AI algorithms to detect the object and estimate the position of the trash-can during movement using TensorFlow and OpenCV.

EDUCATION

Master of Science in Mechatronic Engineering

Hamburg University of Technology, TUHH   *10/2018 – Present*

Specialization: Intelligent Systems and Robotics

Bachelor of Science in Mechatronic Engineering

University of Engineering & Technology, Taxila, Pakistan   *10/2013 – 08/2017*

Specialization: Robotics and Automation

MASTER THESIS

Real-time object detection in 3d point clouds to support airside operations

The research aims to automate point cloud data processing, focusing on real-time object identification in 3D point clouds, primarily to improve airside operations. The proposed system comprises three key components: unsupervised segmentation, ontology-based classification, and self-learning. It enhances planar-based segmentation by establishing a 3D structural connection, resulting in cohesive clusters for classification. Semantic descriptions and the OWL2/SPARQL framework facilitate categorization.

TECHNICAL SKILLS

Python	Java
C/C++	JavaScript
MATLAB	LabVIEW
ROS	Linux
HTML	Version Control
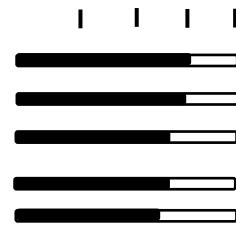
ACADEMIC PROJECTS

Designing, simulation, and development of a tactile sensor for surface scratch monitoring using artificial intelligence (AI) (*Project Work (TUHH), September 2022*)

Visualize, analyze the sensor data (data analytics) and generate a classifier using ML/AI algorithms to predict the shape of the scratch

Machine learning and Deep learning based Covid-19 classifier using chest X-ray images (TUHH, January 2022)

Classification of images in deep learning models (CNN) using TensorFlow and Keras and in machine learning models (KNN, Decision Tree, Logistic Regression) using scikit learn

Object detection with camera using TensorFlow library in Java (*Stadtreinigung, Hamburg*)

Application development using Java for a LEGO robot to solve a complex maze (*TUHH, February 2020*)

This project allowed a LEGO robot to solve a complex Maze autonomously. Color sensing, distance measurement and motor control algorithms were developed in Eclipse using Java

Application development using Java to manage a high-bay harbor storage (*TUHH, January 2019*)

Software development for harbor storage which retrieved and placed an object as per the space availability, whilst also choosing the shortest path in Eclipse using Java

Alarm clock implementation with FSM and motor speed control using PID controller on Atmega128RFA1 – Visual Studio and C (*TUHH, July 2020*)

This project implemented different tasks like motor speed control and Encoder Alarm Clock using interrupts and timers in Atmega128RFA1 using Visual Studio and C Programming language

Development of software to modify a laptop's control to play a game using hand gestures (*Self learning*)

Webpage development using HTML5 (*Coursera*)

SOFT SKILLS

Critical Thinking	Teamwork	Problem Solving
Leadership	Time Management	

AWARDS/CERTIFICATES

Pakistan Student Association (PSA), TUHH

Environmental Protection Society, UET Taxila

LANGUAGES

English	German
(B2)	(A2.1)