Aamish Hussain

Graduate Student in Robotics

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Programming/Computing

Languages

Python, MATLAB
●●●●●○
C++, R
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Technologies

- ROS, Docker, Git, Gazebo
- pytorch, Numpy, SciKit, Networkx
- Solidworks, Proteus
- Linux,MS office

Awards

Best Senior Project, NUST 2017

Merit Scholarship NUST – 4 Semesters

Runner up – FICS 2017

Languages

English – business fluent, C1
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Urdu, Punjabi – Native
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German – A2-B1
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Activities

- Middle-distance running
- Tennis
- Sim racing

EDUCATION

Technische Universität Dortmund, Germany 2020-present

M.Sc. Automation and Robotics
Robotics, Machine learning and Computer Vision

National University of Science and Technology, PK 2013-2017

Bachelors of Engineering, Mechatronics
Project Thesis: Slurry Deposition on Asperous Surfaces using 3D printers

CAREER HISTORY

Research Assistant - WHF 09-2022 - Present
Communication Networks Institute, TU Dortmund

- Developing Simulated environment for communication aware robot navigation using OpenAI **Gym** and **gym-minigrid**
- Implementing deep reinforcement learning techniques for robot navigation using **pytorch**.

Independent Project Work 09-2018 – 05-2019

- Developed a low cost smart watch aimed for new users
- Developed its core functionality with **BLE**, **CAD** and assembly.
- **Sensor-actuator** integration, digital display functionality

Research Assistant 08-2017 – 07-2018
NUST College of Electrical and Mechanical Engineering

- Implementation of **Visual Odometry** for human-robot synchronization
- **Modeling and Simulation** of the robotic arm in Solidworks
- Development of **GUI** with **QT and** Literature review participation

ACADAMIC AND COMMERCIAL PROJECTS

10-2021 06-2022 **Race against the machine – demonstrated 5G teleoperation of race cars**

- Modified **ORB-SLAM3** for integration to the existing code base for **self-driving**. Utilized **ROS** in **C++** to write nodes**.** Used **Docker** to deliver a platform-agnostic solution.
- Contributed to **path following** set-up by utilizing a modified pure-pursuit algorithm written in **python.** Tested the approaches in the simulated environment in **gazebo** and **RVIZ.**
- Reviewed existing approaches for **self-driving cars** and wrote documentation

09-2016 09-2017 **Slurry Deposition Printer for Asperous Surfaces**

- Developed a **3D printe**r capable of printing on objects having different sizes, shapes, and surfaces.
- Contributed to the development of user control GUI using **QT** and **python**.
- Developed a system that takes an image and converts it into **vector graphics**, is manipulatable in GUI, and then can be converted into g-codes for GRBL and at the end, into CNC controls
- Was responsible for **debugging** the whole the system comprising mechanical, electrical, and software elements.