

# AMEER HAMZAH

ROBOTICS SOFTWARE ENGINEER · EDUCATIONIST

12-8, H-12 Sector, Islamabad, Pakistan.

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“Every challenge in robotics is an opportunity to learn, grow, and revolutionize the future.”

## Summary

I am pursuing my MS research in autonomous robot navigation and working as a freelance robotics engineer. My journey in robotics has been fueled by a love for innovation and a desire to create autonomous robots that can transform industries. I thrive on designing and programming robots that navigate and interact with their environment by implementing advanced perception and control algorithms. Every project is an exciting challenge, and I am dedicated to leveraging cutting-edge technologies to solve complex problems. Additionally, I have demonstrated work experience in teaching as a STEM and Internet of Things instructor.

## Work Experience

### Freelance Robotist (Self-Employed)

Worldwide

#### PROJECTS

Jun. 2023 - Current

- Computer Vision-Based Mobile Robot Navigation Using Aruco Tags in ROS2 and Webots Robot Simulator (**Advanced**)
- Implementation of Simultaneous Localization and Mapping Using Pygame Simulator (**Advanced**)
- Multi-Robot Simulation using state machines in ARGOS Multi-Robot Simulator (**Advanced**)
- Mobile Robot Navigation using behavior trees in ROS2 and Gazebo using Nav2 framework (**Advanced**) [Video](#)
- Boundary Following Robot with PID Controller Using Laser Range Finder in ROS and Gazebo (**Basic**)
- Line Following/Obstacle Avoidance Robot using state machines in webots robot simulator (**Basic**)

### Beaconhouse School System

Punjab, Pakistan

#### STEM/ROBOTICS TEACHER

April. 2018 - April. 2022

- Taught STEM and Robotics to O levels and middle school children
- Conducted STEM workshops in coordination with international organizations i.e codeclub.org, Raspberry Pi Foundation
- Introduced students with DIY kits and programming using Scratch

### Pakistan Telecommunication Company Limited

Punjab, Pakistan

#### MANAGEMENT ASSOCIATE (TECHNICAL)

Mar. 2016 - Dec. 2016

- Configuration of Next Generation Network Switches (Huawei, ZTE)
- Facilitated commissioning and testing of network elements by vendors.
- Monitored remote sites and supervised fault rectification.

## Education

### NUST(National University of Science and Technology)

Islamabad, Pakistan

#### M.S. IN ROBOTICS AND INTELLIGENT MACHINE ENGINEERING

Sep. 2022 - Ongoing

- Pursuing research in autonomous mobile robot navigation after completing my course work
- Taught a three months course on Internet of Things
- Conducted workshops on Robotics Operating System and Freelancing
- **Implemented SLAM and Navigation on a Real Robot (Turtlebot3, Turtlebot4)**
- **Implementation of Object Recognition on Real Tello Drone having a built-in camera using ROS2 (Ongoing Project)**

### UET Taxila(University of Engineering and Technology, Taxila)

Taxila, Pakistan

#### B.S. IN ELECTRICAL ENGINEERING

Sep. 2011 - Jul. 2015

- **Final Year Project** - Microcontroller Based Integrated Power Grid Synchronization Failure Detecting Trainer Subject to Voltage and Frequency Change
- Coded and implemented an Ultrasonic Distance Measurement Module as a semester project.
- Automatic alarm bell timer using DS3231 and Arduino [Link](#)
- IoT webserver to control home appliances using ESP32
- Basic traffic lights project using ATmega32 micro-controller

## Skills and Interests

### TECHNICAL

C++ - Python - Machine Learning - Robotics Operating System - Gazebo - Webots - Control Algorithms - SLAM - Path Planning - Sensor Fusion - Computer Vision - Deep Learning - Reinforcement Learning - Mobile Robotics - Aerial Robotics - Robotic Manipulation

## MANAGEMENT

Leadership - Interpersonal Communication - Project Management - Collaboration

## LANGUAGE

ENGLISH (Fluent) - URDU (Native)

## Certifications & Awards

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2023	<b>Attendee</b> , Poweruser in IEEE Xplore Digital Library	IEEE, Asia
2023	<b>Awardee</b> , Machine Learning Specialization	Coursera
2022	<b>Awardee</b> , Robotics Specialization with Webots	Coursera
2021	<b>Awardee</b> , C++ and Python Courses	freecodecamp.org
2020	<b>Best Teacher</b> , Beaconhouse Annual Awards Distribution Ceremony	BSS, Punjab
2016	<b>Awardee</b> , Leadership and Network Training	PTCL, Pakistan
2014	<b>Awardee</b> , SIEMENS PLC, HMI & SCADA Certification	UET Taxila, Pakistan
2011	<b>Awardee</b> , ICT Merit Scholarship for Four Years	UET Taxila, Pakistan
2009	<b>Finalist</b> , Provincial Declamation Contest	Punjab, Pakistan

## Hobbies

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- DIY Robotics
- E-Gaming
- Badminton

## Extracurricular Activity

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### National University of Science and Technology

Islamabad, Pakistan

PG REPRESENTATIVE, NUST STUDENT FORUM (NSF)

Sep. 2022 - Sep. 2023

- Reformed the society focusing on its reach and building network on and off campus.
- Raised awareness about career options through workshops

### National University of Science and Technology

Islamabad, Pakistan

MEMBER SPORTS CLUB

Sep. 2022 - Current

- Promoting badminton and other sports
- Scheduling sports activities at sports complex

### Go Green Hafizabad

Hafizabad, Punjab

VOLUNTEER

Jun. 2017 - Current

- Social working and career counseling of young students
- Running charity activities for deserving people