

Asim Zulfiqar

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Profile

I am a highly skilled and experienced Electronic engineer with a BS in Electronic Engineering and an MS in photonics, Integrated circuits, sensors, and networks. I have extensive knowledge and experience in IoT, embedded systems, python programming, and STEM training. I am a strong communicator and have been creating educational content on IoT, specifically MQTT and embedded systems, on YouTube and in my personal blog. Currently, I am working on an agriculture-based IoT project with LRZ.

Key Skills

- Programming languages: Proficient in C, Python, and MATLAB.
- IoT: skilled in IoT Clouds (AWS, Azure, Cloud MQTT, TTN), data protocols (HTTPS, MQTT, Coap, Web-sockets), and network protocols (Wi-Fi, BLE, ZIGBEE, LORAWAN, NB-IoT, LTE).
- Development Boards: Arduino, Raspberry Pi, ESP, LoRa Modules, GPS, and Nrf boards.
- Applications: Android studio, development using Flutter, Tkinter, PyQt.
- DevOps: CI/CD tools, Docker, Ansible, Grafana, Prometheus.
- Web APIs: REST API, Fast, XML/JSON/YAML.

Experience

Scientific programmer for IoT Research projects

Sep 2022 – Present

Leibniz Rechenzentrum (LRZ) - Garching bei München, Germany

- Participation in real time IoT data collection via LORA WAN, TTN, and MQTT.
- Definition and implementation of REST APIs for exchange of IoT sensor data.
- Design and implementation of a web-based user interface to InfluxDB using Grafana.
- Extension of automatic monitoring of data delivery and alerting with Prometheus.
- Virtual server management in the LRZ Compute Cloud using Ansible.

Embedded and IoT developer

Nov 2017 - Sep 2022

Fiverr and Upwork - Freelance (Remote)

- Completed over 300+ projects/orders with positive feedbacks on Fiverr and Upwork.
- Services included: embedded systems (Arduino, Raspberry Pi, ESP8266, ESP32, Nrf52), IoT development & clouds (MQTT, HTTP, AWS, IoT Azure, TTN), online STEM training, mobile application development, computer programming (Python, Java, C, C++), and technical content writing.
- Worked with companies and individuals all around the globe in different industries such as health, automobile, automation, agriculture, and more.
- Utilised my expertise to provide solutions for clients' needs and exceed their expectations.

Online STEM & Coding Instructor

Jan 2022 - Jun 2022

First Code Academy - Hong Kong (Remote)

- Taught block, Scratch, Python programming, and application development using MIT App Inventor.
- Developed and implemented lesson plans to engage students and Collaborated with other instructors to design and deliver STEM programs for children.

IoT software developer

Aug 2021 - Dec 2021

Consorzio Nazionale Interuniversitario per le Telecomunicazioni (CNIT) - Pisa, Italy

- Developed software for a Container Tracking Device (CTD) using ESP32, Quectel BG96, and sensors.
- Developed software for GW NB-IoT/BLE Mesh provisioning and sensor data transmission to ICON cloud via UDP/JSON.
- Created a data model for the CTD in cooperation with the client (CNIT).

IoT developer & STEM Instructor

Jan 2019 - Dec 2019

Techtree - Karachi, Pakistan

- As a STEM trainer, instructed school students in learning block, scratch programming, basic Electronic Engineering, and made them familiarised with trending technologies such as AI and IoT.
- As an IoT developer, designed and developed IoT based products such as Smart Air conditioner controlling device, which can be controlled using the internet.

Education and Qualifications

Master in Photonic Integrated circuits, Sensors, and Networks

Sept 2020 – Aug 2022

Erasmus Mundus Joint Master's Degree (PIXNET)

Overall Grade: Distinction

Thesis: Analysis of CFO estimation method in eigen value domain.

Universities:

- **Osaka University**, Osaka, Japan Aug 2022
- **Aston University**, Birmingham, United Kingdom Mar 2022
- **Scuola Superiore Sant'Anna**, Pisa, Italy Aug 2021

Bachelors in Electronic Engineering

Jan 2015 - Dec 2018

University: Sir Syed University of Engineering and Technology, Karachi, Pakistan

Grade: Excellent (3.57 CGPA) – 3rd position (bronze medallist) in the batch of 250 students.

Final year project: Physical robotic Assistant (Robotics, IoT, embedded systems)

Additional Experience & Awards

- Reviewed "Raspberry Pi and MQTT Essentials," book and "Privacy and Ethics on the Internet of Things" course.
- Content Creation: 45+ educational videos, tutorials, and how-to blogs on embedded systems, IoT, and programming, on my Youtube channel and blog.
- Selected as an Erasmus mundus scholarship winner (1 of 20 worldwide), 2020.
- Received Tuition Fee Waiver scholarship for outstanding performance in undergraduate studies, 2015-2018.

Publications

Hands-on ESP32 with Arduino IDE: Unleash the power of IoT with ESP32 and build exciting projects with this practical guide by Asim Zulfiqar

Jan 2024

ISBN: 9781837638031

Quantum Computer Metrics and HPC Center Environmental Sensor Data Analysis Towards Fidelity Prediction

Nov 2023

Hossam Ahmed, Xiaolong Deng, Helmut Heller, Carla Guillen, *Asim Zulfiqar*, Martin Ruefnacht, Amit Jamadagni, Matthew Tovey, Martin Schulz, Laura Schulz

DOI: 10.1109/QCE57702.2023.10200

Language skills

English (IELTS: 7.0), German (A2)

Projects

- IoT wearable social band – (freelance) Fiverr – Buffalo's Motor bike, Japan.
- Smart Parking system Barrier using IoT – (freelance) Fiverr - Your Parking Space, UK.
- Indoor Golf setup – (freelance) Fiverr – Stracka Line, USA.
- Burn-in system for logging data – (freelance) Fiverr - Test-Solution Service Inc., Philippines.
- Escape Room – (freelance) Fiverr - Heage, France.
- Cars weighing system for motor sports – (freelance) Upwork– gp24, Romania.