

Danial Hawari, M.Sc., B.Eng.

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“Research Engineer” | “Network Engineer” | “Cloud Engineer”

Educational Backgrounds

Hochschule Karlsruhe, Germany & Universidad de Oviedo, Spain

Erasmus Mundus Joint Master's Degree in Mechatronics Engineering

August 2022

Relevant Coursework: Secured Cyber-Physical System (Cybersecurity), Autonomous Micro-Mechatronics System, Industrial Mechatronics System, Artificial Intelligence, Microcontroller Technology & Energy Efficiency, Industrial Robotics, Construction & Manufacturing, Control Systems Implementation, Industrial Electronics for Mechatronics Systems, Advanced Mechatronic Systems Design & Analysis, Serial Product Manufacturing, Automation

Hochschule Karlsruhe, Germany & University Malaysia Pahang, Malaysia

Dual Bachelor's Degree (Honors) in Mechatronics Engineering

February 2020

Relevant Coursework: Hybrid Integration, Electronic in Mechatronics Systems, Information System, Cleanroom Technology, Control System Engineering, Product Development & Design, Optoelectronics, Quality Inspection, Quality Management, Software Engineering, Computer Programming, Sensor & Instrumentation Systems, Industrial Automation, SMD Technology, Micro-Computer Technology, Numerical Programming, Programming for Engineer, Mechanical & Electrical Components, CAD Modelling, Mechanics of Materials, Manufacturing Processes

Technical Projects

Development of Cyber-Physical System

March 2022 – August 2022

An IoT gateway device that can communicate with the embedded Jetboard system via BLE and connect to the Internet via Wi-Fi/GSM with MQTT/HTTP was developed so that the customers can access the Jetboard status

- Designed and fabricated an embedded IoT gateway device for the self-sufficient electric Jetboard system
- Developed a full-stack cloud application for remote monitoring and controlling of the Jetboard

Development of Intelligent Crutch

September 2021 – February 2022

The intelligent crutch, equipped with weight measurement sensors and feedback actuators, and its smartphone application was developed to revolutionize the conventional crutch to protect patients from injuring themselves

- Developed Intelligent Crutch smartphone app that can communicate with the crutch via Bluetooth to monitor the load on the affected limb and analyze gait patterns from the obtained sensor data
- Designed the communication system between both crutches and between a crutch and the smartphone app
- <http://hit-karlsruhe.de/hit-info/info-ss21/intelligent-crutch/index.html>

Development of Corona Ventilator Web Application

March 2021 – September 2021

An affordable and easy-to-fabricate corona ventilator alternative was developed together with its Web application to monitor the patient status in a real-time manner to cope with the high demand for places with mediocre medical infrastructure such as in third-world countries

- Researched and redeveloped Web app based on Django framework that can generate high-performance plotting graphs, has admin and user management features, and patient history database
- Researched and redeveloped the embedded system to eliminate any communication bottleneck so that the system can send sensor data faster to the Internet
- Alternative project: <http://www.hit-karlsruhe.de/hit-info/info-ws20/8x8-App/8x8-WebApp/TapToHomepage.html>

Development of Autonomous Vehicle Model

September 2020 – June 2021

A superior autonomous vehicle model than the previous model was developed to participate in the TU Braunschweig Carolo Cup Competition 2022 on behalf of the university

- Replaced the previous system that runs on NVIDIA Jetson TX1 with Intel NUC that has a system that operates on Linux Ubuntu 20.04 OS, with ROS, and OpenCV dependencies
- Redeveloped the image processing system that can run without using CUDA architecture or CUDA GPU hardware with better image processing efficiency and the car was able to navigate itself faster on the road
- <https://www.h-ka.de/die-hochschule-karlsruhe/aktuelles/news/2020/erfolgreiche-teilnahme-der-hochschule-karlsruhe-am-13-carolo-cup-2020>

Work Experience

Lampuga GmbH

Embedded System Engineer – Working Student

Rastatt, Baden-Wuerttemberg
March 2022 – August 2022

- Designed and developed alternative IoT solutions as an added value for the future product
- Tested and validated Jetboard wireless communication system to prove the product robustness and quality

Hochschule Karlsruhe

Research Assistant

Karlsruhe, Baden-Wuerttemberg
May 2020 – May 2021

- Supervised international projects "MYITOPS" and other student projects
- Prepared teaching materials and taught "Communication Protocol & Cloud System"
- Redeveloped Gas Engine Lab energy system with IoT technology for better control and efficiency

Intel Microelectronics

System on Chip Design Engineer – Intern

Bayan Lepas, Penang
July 2018 – Jan 2019

- Developed automation scripts to increase productivity during the RTL design process
- Analyzed and debugged RTL for PCH in Comet Lake & Tiger Lake projects to create a better motherboard

Leadership Experience

Student Representative – Germany, EU4M

September 2020 – August 2022

- Organized and assisted matters related to student affairs
- <https://www.eu4m.eu/consortium/organization>

Team Leader, MYITOPS

March 2019 – September 2019

- Pioneered and led international teams comprise of German & Malaysian students to complete the projects
- <https://www.h-ka.de/en/ikku/gas-engine-technology/myitops>

Computer Skills

Programming Language – Python, Perl, PHP, SQL, HTML, JavaScript, Dart, Git, TCL, Bash, PLC, C++, C

Microcontroller – Arduino, ESP32, Raspberry Pi, myRIO, NVIDIA Jetson, BeagleBone Black, Intel NUC/UP2, STM32WB

Machine Learning – OpenCV, TensorFlow, Google Cloud ML, Keras, PyTorch, Scikit-Learn, Anaconda

Computation & Simulation – MATLAB & Simulink, ANSYS, Flexsim, MoldFlow, Gazebo, LabView, KUKA.Sim

Mechanical Design – Solidworks, Fusion360, CATIA, Inventor, AutoCAD, Blender

Electrical Design – Altera Quartus, Modelsim, Fritzing, Protheus, PSpice, Eagle, EasyEDA, KiCad EDA

User Interface Design – Web App (Bootstrap, Django, .NET, SQLite) & Native App (Android Studio, QT, PyCharm – PyQt5, MIT App Inventor, Flutter)

Media Design – Adobe Creative Cloud

Cloud Experience – Google Cloud, Amazon AWS, Microsoft Azure, DigitalOcean, BWCloud, PythonAnywhere

IDE Experience – Linux (Ubuntu), Visual Studio /Code, PlatformIO, Atom, Jupyter, Docker, Google Colab, ROS

Languages

Spanish – Good proficiency in spoken and written language, B1+ level

German – Good proficiency in spoken and written language, B2 level

English – Highly proficient in spoken and written language, C1 level

Malay – Native language

Achievements

DAAD Prize 2021 – German Academic Exchange Service

October 2021

VDI University Prize 2020 – Association of German Engineers Karlsruhe

September 2020

Top 10 Best Practice Projects – Stifterverband MINTClub MINTChallenge: MINTDigital 2020

June 2020

Erasmus Mundus Scholarship – Education, Audiovisual & Culture Executive Agency (EACEA)

March 2020

Global Problem Solver – NASA Space Apps COVID-19 Challenge 2020

May 2020

3rd place – AON Hacktuarial Hackathon 2019

July 2019

2nd place – Intel Industry-University Challenge 2018

November 2018

TRIZ Level 1 Practitioner – The International TRIZ Association

September 2018

Bursary Programme Scholarship 2016-2020 – Yayasan Sime Darby

August 2016

Interests

Internet of Things, Artificial Intelligence, Cyber-Physical System, Automation, Robotics, Communication, Web Application, Cloud Application, Mechatronics, Animatronics, Embedded System

References

Prof. Dr. -Ing. Robert Weiß

Hochschule Karlsruhe, Germany

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Prof. Dr. -Ing. Maurice Kettner

Hochschule Karlsruhe, Germany

Dean of Automotive Technology

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