Mustafa Alaraj

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EDUCATION

B.Sc. in Computer Engineering (Highest Honors) August 2020 - May 2024
University of Sharjah, Sharjah, UAE 3.96/4.0 GPA
College of Computing and Informatics
An English program accredited by the Engineering Accreditation Commission of ABET. Completed the degree in courses based on hardware design, software programming, software engineering, robotics, and innovation with a GPA of 3.96/4.

PROFESSIONAL EXPERIENCE

Huawei Technologies, Dubai, UAE: Cloud Solution Intern May 2024 – September 2024

- Performing an internship at Huawei Enterprise in the cloud solutions department.

OpenUAE R&D, Sharjah, UAE: Research Assistant April 2022 – November 2023

- Research assistant in different projects related to energy blockchain and drones.
- Published different research publications in the related fields in addition to actual implementation

Technical University of Chemnitz, Chemnitz, Germany: Electronics & IoT Intern June 2023 – August 2023

- Summer training in IoT-enabled control of other devices under testing and computer vision application for robotics.

Information and network security R&D, Sharjah, UAE: Research Assistant February 2022 – March 2023

- Research in steganography and embedded text capabilities

SKILLS

Programming: Python, Go, JavaScript, ReactJS, NodeJS, HTML/CSS, C/C++, Matlab, Assembly
Technical Skills: Full-stack development, Backend development, Git, Docker (Containerization), CI/CD, Kubernetes, Cloud Computing, Cloud Solutions, ROS2, NAV2, MySQL, NoSQL, OOP, Data structures, Machine learning, Embedded systems, Blockchain (basics)
Soft Skills: Presentation, Communication, Fast-learning, Smart Working, Time-management, Coordination, Teamworking
Languages: English (Fluent), Arabic (Native)

PROJECTS

ePortfolio: A web application that enables users to create accounts and portfolio pages for themselves
Designed alone a full-stack web application that allow users to create an account and portfolio page and allow to view other portfolio pages

- Used Go (programming language) to program the backend and ReactJS framework for frontend development.
- Database was managed using MongoDB Atlas for the cloud database.

Campus Courier: An Autonomous Robot Delivery Inside University Campus
Graduation project collaborated in a team of 3 to design and implement autonomous robot delivery.

- Developed autonomous navigation and dynamic obstacle avoidance (ROS2 & Nav2) and containerized using Docker.
- User interface and server configuration.
- Presented the proposal in-front of more than 120 person including faculty audience for evaluation.

Web application for EV charging project at the university campus
A member of a team to design a full-stack web application that facilitates PV generated energy for EVs in the university campus with blockchain

- Used ReactJS for the frontend and NodeJS for backend development.

- Data were stored on a hyperledger fabric blockchain system in addition to MongoDB atlas to manage users.

Bus transportation system database management system
Designing and implementing a MySQL database management system for a bus transportation system.

Automatic Parking Violation Detection by Drones
Design automatic parking monitoring system for university area using drone.
- Created control system for automatic drone navigation.
- Used computer vision for violation detection, MongoDB for the database, and UML to design the entire system.

RISC-V microprocessor implementation
Design and implementation of the RISc-V microprocessor architecture. Implemented the hardware design of the RISC-V using Logisim Evolution and created assembler to transfer RISC-V assembly language to machine code (Python).

SCIENTIFIC PUBLICATIONS

Campus Courier: An Autonomous Delivery Robot On-Campus
- Implementing autonomous robot delivery in a closed area such as a university campus with ROS2 and Nav2
- Current state: Accepted by Advances in Science and Engineering Technology International conference (ASET 2024) and to be available on IEEExplore.

Towards a Comprehensive Framework for Benchmarking Blockchain-Based Energy Systems: Hyperledger Fabric Perspective
- Implemented and benchmarked Hyperledger Fabric network for monitoring and controlling solar PV station and EV charging station.
- Project involved creating the blockchain network and web application using JavaScript and ReactJs.
- Current state: finaliziation.

Towards Better Blockchain-enabled Energy Trading Between Electric Vehicles and Smart Grids in IoT Environments: A Survey
- Surveying different blockchain networks and consensus protocols that suits charging stations for electric vehicles in the university and chosen Hyperledger Fabric.
- Published on Frontiers in Energy Research journal.

Exploiting Redundancy in English Language for Hiding Secret Data in Innocent News Articles
- Testing the capability of hiding secret information inside innocent-like news articles using NLP
- Published on IEEExplore Advances in Science and Engineering Technology International conference (ASET 2023)

Near Real-Time Drone Traffic Monitoring System (Proposal)
- Top two teams in research and development category of HH Sheikh Mohammed bin Rashid Al Maktoum Global Aviation Award 2022.
- Proposed a system for detection, identification, neutralization, and monitor of drones in restricted areas.

ACTIVITIES

IEEE Computer Society September 2023 - April 2024
Organizing and event-planning for the IEEE computer society club at University of Sharjah
- Organized multiple events and workshops for topics related to computer engineering/science field.

Google Developer Student Club (GDSC) September 2022 - June 2023
Organization committee and technical-member. Oraganized events for university activities
- Organized ICDSIS 2022 international conference in Sharjah, UAE