Mohamed Helwa

Computer Science 3B, 20873562

226-929-6695

m2helwa@uwaterloo.ca

linkedin.com/in/mohmed-helwa-ba737515a

github.com/mhahelwa2020

EDUCATION

Candidate for Bachelor of Computer Science

University of Waterloo
09/2020- Present
Waterloo, Ontario, Canada

IB Diploma Program Alumni

King Faisal School
09/2018- 04/2020
Riyadh, Saudi Arabia

RELEVANT SKILLS

Design and Development

Object Oriented Programming and Development

Front and Backend Development

Data Analysis

Fluent in C, C++, C#

JavaScript, HTML, CSS

Java and Kotlin

ASP.NET

Networking and Security

Testing and debugging

Jira, Confluence and Git

SUMMARY

An ambitious student with fundamental knowledge of software design and development. My strong desire to innovate coupled with my aptitude for creating solutions led me to actively seek opportunities to work on projects within the realm of software, data analysis, full-stack, and many related fields.

PROFESSIONAL EXPERIENCE

Quantum-Safe Cybersecurity Software Developer May 2022–August 2022

IQC BaSQuaNa project, Waterloo, ON

- Developed and tested a quantum key distribution (QKD) network (OpenQKD) using Java Spring boot, gRPC, Netty, OpenSSL, and other java frameworks.
- Setup a web application infrastructure (QKD-Dashboard) from scratch that transfers, summarizes, and presents information about the OpenQKD network.
- Built API endpoints that apply HTTP and Websocket protocols to transfer information dynamically and effectively between sites using NodeJS.
- Created backend using NodeJS, ExpressJS, and MongoDB to access the API from various sites and act as a gateway for all OpenQKD data.
- Designed dynamic frontend UI using VueJS, Bootstrap, and various JS libraries to present OpenQKD data to researchers, investors, and other parties.
- Utilized AWS servers to run and test the OpenQKD network and the QKD-Dashboard.
- Collaborated with international organizations to deliver on project requirements.

Software Developer May 2021–August 2021

NERv Technology Inc., Waterloo, ON

- Generated a data-driven, user-friendly companywide web application that continuously compiles and summarizes incoming clinical study data.
- Managed web application backend by utilizing an existing .NET framework and Razor pages model.
- Implemented frontend features using Vue, Bootstrap, and various JS libraries such as Plotly.
- Contributed to the backend development of multiple APIs for data acquisition crucial to web application functionality.
- Aided in the modelling of companywide NoSQL schema and implementation on cosmosDB.
- Automated the quality control process of manufactured devices by streamlining data collected from existing mobile application systems.
- Gathered user feedback from multiple teams to define, design and meet project expectations.

ACADEMIC ACHIEVMENTS

Dean's Honour List (2020 - Present)
Awarded for achieving an 85% accumulative average in all terms

Scholarship of Distinction
Awarded for remarkable distinction during university applications

SPORTS

Saudi Arabian National 30 Meter Archery Gold Medallist (2019 - 2020)
Achieved for three consecutive seasons

Saudi Arabian National 18 Meter Archery Gold Medallist (2019)
Achieved for two seasons

Varsity Soccer Team Player (2018 - 2019)

Varsity Basketball Team player (2019 - 2020)

INTERESTS

Archery
Soccer
Basketball
Photography
Chess
Video Games

Linux Chess Application 2021

- Made use of profound object-oriented programming knowledge to develop a Linux based chess application using C++ and design a respective UML model.
- Developed an AI computer system that utilizes a min-max algorithm and implements complex functionalities such as en passant, castling, etc. to provide a challenging experience for users.
- Integrated features that allowed users to select opponent, make customized boards, and display the board graphically.

COVID Watchdog 2021

- Developed a web application to track COVID-19 related data and provide users with travel recommendations around Canada via MERN stack.
- Employed existing and self-built APIs to record and track parameters such as active cases, vaccination rates, population density, etc. using JavaScript.
- Coordinated and managed a team of full-stack developers to complete the project in a 3-day period as part of Hack the North.

RFID Security System 2020

- Devised an RFID system to automatically capture student tags and trace them to a self-developed database.
- Programmed modules that store, identify, and track specific keys used in scanning. This was adopted by King Faisal School to optimize security protocols.
- RFID sensor developed using an Arduino programmed in C and software developed using Python and SQL.

Wearable Pedometer 2020

- Engineered a wearable pedometer designed to detect vertical movement and track the number of steps to provide an estimate of the distance walked.
- Expounded upon the mathematical, kinematic, and electrical applications in a formal elaborate report.
- System built using Arduino, MEMS (Micro-electrical mechanical systems), and programmed using C.

Thermochemical Transducer 2020

- Designed and built a thermochemical transducer to measure the generation of heat by exothermal reactions.
- Developed a program that tracks, stores, analyses, and visualizes the temporal temperature variability.
- Thermochemical sensor was built using an Arduino programmed in C and the software was built using Python and SQL.

Velocity 2019

- Designed a first-person puzzle platform game as part of an initiative to increase recognition to programming and computer science.
- Concocted a series of puzzles and clues to provide a unique gaming experience.
- Video game designed and developed using Unity programmed with C#.