Harith Al-Safi

Electronics and Computer Engineer

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About me

An engineer with great enthusiasm towards data science and Artificial Intelligence. Some of my hobbies are working out, trading and investment. A deterministic outlook characterize my approach to tackling challenges.

Experience

Robot Engineer

m Dec 2023 - Mar 2024 (4 Months)

Robot fight league

♀ Leeds, UK

- Designed a 3D CAD for robot fight league using Solidworks and Blender and Jira for project management
- Implemented a control system using Arduino and C++ for the robot's movement, sensors and pnuematic system
- Built the robot with 3D printing, metal cutting and soldering for the electronics
- Tested reinforcement learning algorithms using Python and KerasRL for the robot interactions
- Managed a team of 5 engineers to develop the robot and compete in the league ending up 1st place

Frontend Developer

Aug 2023 - Nov 2023 (4 Months)

Velz Travel

♀ Remote

- Directed the frontend of a travel web app for a startup built with Next.js, React.js and Typescript
- Developed user interface using Material UI following Figma design guidelines and business logic using Nodejs
- Collaborated with developers using Jira whilst working on Java Springboot backend with PostgreSQL and Docker
- Conducted valuable tests of AI implementation using NLP and LLM's of the itinerary suggestion feature
- Delivered app through CI/CD, agile development, automated testing with 93% coverage and web deployment

Software Engineer (Placement Year)

July 2022 - July 2023 (12 Months)

Johnson Controls R&D department (JCI)

♀ London UK

♀ Leeds UK

- Administered C++ projects while fixing bugs, adding features, refactoring and migrating 90% of codebase to C#
- Developed C# .NET apps and libraries for IoT, fire detection simulations, R&D, and data analysis
- Participated in a tech challenge by designing analytics web dashboard with React JS for predictive maintenance
- Invented a custom scripting language with a compiler for C# app increasing development productivity by 40%
- Managed Python automation scripts for automated builds of .NET applications and processing data
- Managed a team of 10 interns to create a business plan and ended up placing 2nd amongst the whole company

Machine Learning Engineer Freelance

m Dec 2021 - Mar 2022 (4 Months)

Paperound

- Developed full stack web app using React.js, Next.js, MongoDB with user authentication and CRUD operations
- Developed a cross platform mobile notes app using Flutter and Firebase alongside a recommendation system
- Developed signal processing filters and modulators using SciPy Python and Fourier analysis for RF signals
- Applied data visualization using Python Matplotlib to present analytical insights to non-technical stakeholders
- Developed natural language processing applications using LLM's and Python for sentiment analysis
- Developed object detection and tracking using OpenCV and Python for detecting planets in telescope images
- Utilized Python, TensorFlow, and Scikit-learn to build, train, and evaluate neural networks
- Developed a reinforcement learning model using KerasRL for predicting stock prices
- Developed Serverless REST API with C # and Azure for IoT Sensors using ASP.NET
- Developed distributed system using C++ OpenMP, OpenCL and CUDA for parallel statistical computing
- Developed low level ARM embedded systems with C whilst using memory allocation and register programming
- Engineered a desktop QT application using C++ and Cmake for video analysis and processing
- Engineered a high performance C++ linear algebra library for data analysis through Jenkins, Docker and Cmake

Forex Day Trader

Mar 2021 - Nov 2021 (9 Months)

ICMarkets FX

Leeds UK

• Researched financial factors such as interest rates, GDP, inflation, and employment to predict market trends

- Conducted quantitative research on statistical methods and their applications in financial markets.
- Designed a trading strategy using technical, fundamental analysis whilst simulating risk assesment with Python
- Traded indices, commodities and forex pairs using leverage and margin with a risk management strategy
- Engineered a trading algorithm using Python and Quantitave Analysis for automated trading and backtesting

IT administrator

Jun 2020 - Mar 2021 (10 Months)

Mesopotamia Group

- Amman Jordan
- Collaborated with a team to build a local file server on Ubuntu built using Apache and Nextcloud
- Administered the server using Bash, Python and Nmap with SSH tunneling and port forwarding
- Engineered a load balancer using MPI and C to distribute traffic between servers increasing availability by 34%
- Analyzed the network data logs using Python to predict and prevent cyber attacks
- Implemented Linux networking and protocols using IP addressing and routing for cloud hosting

Education

BEng (Hons) in Electronics and Computer

University of Leeds (UoL)

■ Sept 2019 - June 2024✓ First-Class Honors

- Embedded systems, Microprocessors, FPGA, Circuit Analysis, Signal processing, Networking, Compiler design
- Cloud and Parallel computing, Secure and Distributed systems, Cybersecurity, Software Engineering, Research

Skills

Technical	l: C \ C++ Python Java C# Java	aScript Linux Docker	Azure AWS	Jira Git		
Jenkins	Terraforms Kubernetes SQLite	MongoDB .NET WPF	React Js QT F	Framework	Flutter	
NumPy KerasRL Matplotlib SciPy TensorFlow Pandas OpenCv CMake Node.js OpenCL						
OpenGL OpenMP CUDA Arm Mbed Os Arm Keil Arduino Blender Photshop AutoCAD						
Soft: Management Leadership Motivated Deterministic Communication Problem solver						
Language	es: Arabic (Full Professional)	English (Full Professional)	•	Spanish (Eleme	ntary)	

Projects

IPS

- Re-designed a legacy CLI project to a GUI with C# .NET WPF using MVVM and multithreaded design
- Invented an object-oriented scripting language with a custom compiler and runtime memory access.
- Integrated SQLite database, Excel I/O features, data analysis tools and serial communication protocols
- Communicated with engineers to develop and manage a product life cycle on the app's design and features

Jobhive

🛗 Sept 2023 - Ongoing 📍 Persona

- Developed a fullstack web app with Nextjs, Reactjs, Chakra-ui and Typescript managing frontend and backend.
- Engineered a monolothic backend REST API routing and endpoints with CRUD Operations using nextjs
- Collaborated with a team using Jira issues and git to sustain clean, maintainable and efficient code
- Developed project management skills from designing the app in figma to implementing it

NotePad

Mov 2021 - Ongoing

Personal

- Programmed a cross-platform note app with Flutter and Dart
- Established backend using cloud authentication services with Firebase and storage with SQL CRUD
- Using the BLoC pattern for state management and the Provider package for dependency injection
- Used KerasRL library for reinforcement learning with human feedback to predict user's next note

Home Automation Embedded System

III Jan 2021 - May 2021

¶ UoL

- Engineered circuits for I/O functionality using data sensors, potentiometers, buttons and resistors.
- Programmed control system using C++ for home appliances such as temperature, air conditioning and lighting
- Developed menu oriented user interface using LCD display and joystick deployed on STM32 board ARM MCU
 TBot: Machine learning Trading Bot
 Uol

- Developed gradient boosting machine learning model using Python and Scikit-learn for stock prediction
- Anlayzed and processed data using Pandas, Numpy and Scipy for training and testing the model
- Backtested the model using historical data and simulated trading using Python and Matplotlib

 Developed a REST API and a user interface to interact with the bot using Flask and PyQT Vega: Chat web app for IoT Circuits Oct 2023 - Jun 2024 Developed a chat bot web application with Typescript, React.js, Next.js, Reddis and Tailwind CSS

- UoL
- Programmed natural language processing algorithms using LLMs to interpet and execute user messages Developed a Python Flask REST Server with SQLite on the Raspberry Pi to communicate with the chat bot
- Engineered a circuit with sensors, fans, LCD and buttons to execute the user's commands from the chat bot

Professional Courses

Data Analysis with Python

₩ Oct 2021

- Develop Python code for cleaning and preparing data for analysis
- Perform exploratory data analysis and analytical techniques to datasets using Pandas, Numpy and Scipy
- Manipulate data using dataframes, understand data distribution, perform correlation and create data pipelines
- Build and evaluate regression models using machine learning scikit-learn for prediction and decision making

Databases and SQL for Data Science with Python

Sept 2021

- Analyze data within a relational database on the cloud using IBM DB2, SQL, Python
- Construct SQL CRUD operations and compose views, transactions, stored procedures and joins.

Python for Data Science, AI & Development

Aug 2021

- Demonstrate proficiency in using Python libraries such as Pandas, Numpy, and Beautiful Soup
- Access web data using APIs and web scraping from Python in Jupyter Notebooks.

Data Science Methodology

Aug 2021

- Apply the six stages in the Cross-Industry Process for Data Mining (CRISP-DM) to analyze a case study.
- Evaluate which analytic model is appropriate among predictive, descriptive, and classification models used.

Extracurricular

Event Coordinator Volunteer IEE RAS ICRA	Mov 2021 - Feb 2022 ♀ London, UK
Web Developer hackathon Royal Hackaway v6	Mov 2021 - Feb 2022 Q London, UK
Game Developer hackathon Pygames hackathon Microsoft	Mov 2021 - Feb 2022
Al Agent hackathon Lablab	Mov 2021 - Feb 2022 ♀ Remote