Stephen Byrne

Full Stack Software Developer

Profile:

My name is Stephen Byrne. I completed my Masters in computer and Electronic Engineering in 2022. I'm currently working at Imagine Robotify as a software developer. I'm passionate about web development and AI.

Contact Information:

Email: sdavidbyrne@gmail.com
Phone: 087 057 1120
Location: Dublin, Ireland.

References:

Available upon request.

Education:

Trinity College Dublin
2017-2022
Masters in Computer and Electronic Engineering
Achieved a Distinction with an average of 73%

Relevant Coursework:
Web development, Data Structures, Algorithms, Object Oriented Programming, Web Development, AI, Machine Learning, Deep Learning, Computer Graphics, Virtual/Augmented reality.

Experience:

Junior Software Developer
Imagine Robotify July 2023 - Present
Collaborated with an agile team to build a digital game-based learning web application from the ground up.
- Actively involved in all phases of the project lifecycle.
- Developed a responsive and scalable frontend using React and Tailwind CSS.
- Built a RESTful backend API server with Node.js and Express.
- Personally responsible for site deployment and implementing Authentication using Okta for the app.
- Developed unit tests to ensure software reliability and maintainability.
- Created a 3D browser-based game engine.
- Conducted thorough code reviews, promoting high code quality and adherence to best practices across the team.

Skills:

- Proficient in programming languages such as Javascript, Python and C++.
- Experience with web development using technologies such as HTML, CSS, React, Tailwind CSS, Node JS, Express,Three js.
- Source control: Git
- Cloud: AWS
- DevOps: Experience assisting implementation CI/CD pipeline using technologies such as Kubernetes, Docker and Github actions.
- Testing frameworks: Jest, Puppeteer and Cypress
- Experience in using machine learning frameworks such as TensorFlow and popular Python ML libraries.
- Excellent problem-solving and critical thinking skills.

Projects

MAI Masters Project (2021 -2022)

https://github.com/stephen447/MAI-Project

The project's goal was to use machine learning to create an intrusion detection systems (IDS) for vehicular networks and deploy the model on hardware. The project was broke down into different phases.

Dataset Selection and Model Training: Datasets were researched to train the models. I decided on a dataset which had never been used for research before. Utilizing Convolutional Neural Network (CNN), models were created and fine-tuned to detect various network attacks, including Targeted ID attacks and Fuzzing attacks.

Hardware Selection and Model Deployment: An FPGA was chosen for deploying the models as it was the best compromise between performance and power consumption. Following this, the trained models were quantized, demonstrating minimal performance impact post-quantization. Subsequently, the models were successfully implemented on an Ultra 96 board using Vitis-AI, which could be then added to a vehicles CANBUS without drawing excessive power.

Performance Optimization and Analysis: To achieve optimal performance, latency and power consumption across different DPU's were recorded and analysed. This analysis enabled the optimal compromise between performance and resource utilization.

Car Advertising Web application (2023-2024)

https://car-advertising-app-1.onrender.com/

I recently completed a personal project, a full-stack car advertising application similar to CarZone. The application allows users to register an account, enabling them to create detailed adverts with image uploads and update their profiles and advert information seamlessly. A PostgreSQL database is used to store user profiles and advert data efficiently, with Django serving as the interface to the database. On the frontend, React was utilized for its component-based architecture and popularity, providing a robust and responsive user interface. I deployed the application using Render and utilised their free tier postGres database.

Messaging Application (2024)

https://messaging-app-m9gy.onrender.com/

I developed a web messaging application using React to build a scalable and dynamic user interface. The backend API was built using Node.js and an Express server, which interfaces with a PostgreSQL database to manage and store user data and messages. The application features a user login system, message sending functionality, online status indicators, and a switchable light/dark theme, creating a responsive and user-friendly messaging platform.

AI Car Description Generator (2024)

https://car-descriptions-ai.onrender.com/

I developed a web application that enables users to input car details and automatically generates a professional description for selling the vehicle. I integrated the OpenAI API for generating high-quality descriptions and built a scalable, interactive user interface using React and Tailwind CSS. Additionally, I implemented a CI process using GitHub Actions to streamline development, and deployed the application on Render's free tier, ensuring a smooth and efficient deployment workflow.