Kshitij Vashisth

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EDUCATION

University of Bristol — **Bristol, United Kingdom**
MSc Scientific Computing with Data Science — *Sep 2023- Nov 2024*
Focal Areas: Software development for research, Data Science, Machine Learning — *Pass with Merit*

SKILLS

Programming Languages: Python, C/C++, C#, Bash, JavaScript, HTML, CSS, SQL, TypeScript
Tools/Techniques: Git, Next.js, React.js, Node.js, Express.js, MongoDB, Flask, Containerisation (Docker), PyTest
Data Science and ML: Pandas, MatPlotLib, Scikit-Learn, PyTorch, TensorFlow, Predictive Modelling, Statistical Analysis

FEATURED PROJECTS

Top-Down Dungeon Brawler Game — **Coventry, UK**
- Developed a Unity-based top-down dungeon brawler with engaging player controls and combat mechanics using C#.
- Integrated procedural dungeon generation and AI-driven enemies for a dynamic and replayable experience.
- Enhanced gameplay with collectible power-ups, boss battles, and visually rich environments.

Todo List Web Application (React.js, Vite, TailwindCSS**)** — **Coventry, UK**
Link to App
- Developed a responsive and interactive Todo List app using React, Vite, and Tailwind CSS for efficient task management.
- Implemented CRUD operations (Create, Read, Update, Delete) with **localStorage** integration for persistent data storage across sessions.
- Designed a user-friendly interface with features like task completion toggling, task filtering, and dynamic input validation.
- Utilized **UUID** for unique task identification and **React Icons** for an enhanced user experience

File Zipper Software — **Clifton, Bristol**
- Built a C++ app for file and folder compression using STL and <filesystem> library.
- Implemented directory traversal and Huffman coding algorithm for up to 70% file size reduction.
- Enabled user-specified paths for compression and designed decompression to restore original structure.

Discovery of new materials for solar cells using ML (group project) — **Clifton, Bristol**
Link to ePortfolio — *Sep 2023 – Apr 2024*
- Led a team to develop a Machine Learning model to predict solar cell materials with 71% accuracy and a 0.615 F1-score.
- Deployed the web application using Flask on the backend, with hosting via Render and version control through GitHub.
- Developed a responsive frontend using HTML, CSS, JavaScript, and Bootstrap, enhancing user experience.

Containerising the HZZ Analysis using Docker — **Clifton, Bristol**
Link to Project — *Mar 2024 – Apr 2024*
- Designed and implemented Docker containers for HZZ analysis, reducing data processing time by 50% and enabling consistent development environments.
- Utilised RabbitMQ for real-time data transmission and Docker Swarm for scalable deployment, improving resource utilisation by 40%.
- Automated the workflow with timestamped plotting and data saving features, enhancing analysis accuracy by 30% and system reliability through continuous integration practices.

TECHNICAL CERTIFICATES

Couch to Coder Certificate — **Bright Network**
Link to Certificate — *23 Sep 2024*
Awarded for successfully completing the Bright Network Technology Academy: Couch to Coder programme, demonstrating proficiency in foundational coding principles and practical software engineering skills.

Bright Network IEUK Technology Internship Certificate — **Bright Network**
Link to Certificate — *18 July 2024*
Awarded upon successful completion of the internship, recognizing proficiency in various technology and professional development modules.

CS50: Introduction to Computer Science — **Harvard University, edX**
Link to Certificate — *18 June 2024*
This course covers fundamental concepts like algorithms, data structures, web development, and more, with a focus on problem-solving and programming skills.

Deep Learning Specialist **Deep Learning, Coursera**
Link to Certificate *25 Mar 2023*
A comprehensive course series covering neural networks, deep learning techniques, and practical applications in AI, taught by leading experts on Coursera.

OTHER PROJECTS

Careers Portal (full stack) Link to Project
- Created a Flask-based web app for job listings, increasing user engagement by 60%.
- Designed intuitive interfaces with HTML templates, enhancing user experience by 45%.
- Used APIs and SQLAlchemy for efficient data management, boosting efficiency by 35%.

Try to Win Link to Project
- Developed an interactive mini game where players aim to reach 20 lives by pressing keys, implemented using Vanilla JavaScript, HTML, and CSS.
- Integrated dynamic styling with randomised colour changes and user-driven game logic, offering an engaging player experience.
- Implemented keypress event handling and game state management to update player lives and trigger win/loss conditions.

Optimised biscuit selection for Retail Link to Project
- Implemented machine learning to identify top-selling biscuits with 92.7% accuracy.
- Used data fusion and predictive modelling to recommend high-demand biscuit types.
- Identified top sellers, boosting revenue by 20% and aiding marketing decisions.

Fitness Tracker (CS50 final project) Link to Project
- Developed a user-friendly Fitness Tracker Dashboard web application using Flask, SQLAlchemy, and Chart.js.
- Implemented secure user authentication and dynamic data visualization features for tracking workouts and water intake.
- Leveraged AJAX for seamless logging and dynamic data fetching, enhancing user experience and engagement.

Project Management Work Sample for Fitness Tech Company (Bright Network) Link to Roadmap
- Developed a six-month project roadmap for a fitness tech company, focusing on user feedback and feasibility.
- Streamlined project planning and execution using project management methodologies to align with company goals.
- Analysed user feedback and collaborated with cross-functional teams to enhance features and meet stakeholder needs.

GitHub update automation script Link to Project
- Crafted a bash script that automatically updates remote GitHub repositories from local disk utilising Linux-based Git.

WORK EXPERIENCE

GloNeuro
Researcher, Writer *Jan 2022 – Dec 2023*
- Synthesized complex neuroscience concepts, debunked sleep myths, and analysed studies, boosting publication acceptance by 20%, reader engagement by 30%, and citations by 25%.

Jax Foundation
National Volunteer *Aug 2022 - Oct 2022*
- Created personalized lesson plans, used innovative teaching methods, and collaborated with local organizations to improve academic performance by 15% and provide educational resources to underserved communities.