PROFILE

Software Engineer with a robust foundation in full-stack software development, data analytics, and applied machine learning—currently expanding expertise in reinforcement learning for robotics and diffusion models for generative AI. With over three years of professional experience across consultancy and research, I bring strong programming expertise in C, C++, Python, Java, and JavaScript, and hands-on experience with modern web technologies including React, Node.js, and SQL-based data systems. Experience with applied statistics, numerical methods, and differential equations. I thrive in high-pressure, cross-functional teams, and am particularly effective at translating complex technical challenges into clear, maintainable, and impactful software solutions.

EDUCATION

Queen Mary, University of London, *Master's Degree in Data Analytics |92% GPA - First Class Honours Predicted | U.K.*
- Member of Queen Mary Machine Learning Society, Queen Mary Debate Society and Queen Mary Mathematics Society
- Modules in Bayesian Statistics, Neural Networks, and Advanced Machine Learning

University of Pavia, *Bachelor's Degree in Computer Engineering |90% GPA - 94% Final Grade | Italy*
- Organized academic conferences centered around AI, Renewable Energy and Public Health.
- Competed in IEEEXtreme, a team-based coding competition and landed in the top 4% of teams worldwide.
- Thesis Project in applying the MuZero Algorithm for efficient Task Allocation

EXPERIENCE

St Dunstan's Church, *Software Engineer | London, UK | January 2025 - March 2025*
- Designed and deployed a scalable web application to manage user identities and generate usage analytics for a community food bank service.
- Generated various Data Visualization tools on the Web App to visualize important statistics such as mean age, gender distribution, income distribution, and more.
- Utilized React for the frontend and Flask for the backend services.

Deloitte Digital, *Full-Stack Software Engineer | Milan, Italy | May 2022 - July 2022*
- Implemented customer-facing features and backend integrations for Jaguar Land Rover's global e-commerce platform, improving system reliability and user experience.
- Developed Team Working soft skills due to being part of a 20 person team spread between three countries, advanced my proficiency in working with React and Node.js, and enhanced my knowledge of server-side development.

Lynx S.p.A, *Software Engineer | Milan, Italy | September 2021 - May 2022*
- Collaborated on a large Data Management project, which manages readings from electric measurements to provide useful analytics and dispatch bills for our clients, which are large energy providers such as Enel, Eni or Iren.
- Developed more than 25 additional features for the project, implementing business logic to handle new measurements and calculate valuable analytics. For each feature I authored Unit Tests and handled System Tests.
- Applied object-oriented programming and test-driven development (TDD), while improving database performance through optimized PostgreSQL queries. Gained hands-on experience with key industry technologies, including Hadoop, Kafka, Spark, and Drools. Additionally, collaborated effectively in a 10-person team following Agile methodologies.

Zurich Insurance, *Software Engineering Intern | Hong Kong | August 2020 - September 2020*
- Designed and built Data Scraping projects to read and summarize data regarding competitors from their company websites.
- Developed hands-on experience with Python, the Selenium Library and Web Scraping.

KPMG, *Intern and Panelist | Hong Kong | July 2020 - August 2020*
- Collaborated with a team to organize and promote KPMG's Connected Cities Conference. Contributed to event logistics, followed up with 50+ attendees to foster inter-company collaboration, and edited 2 videos and 10+ posters for promotion.
- Panelist in a section of the event, discussing the future of education and aligning Hong Kong's school curricula with industry needs to an audience of most important industry leaders in Hong Kong.

PROJECTS AND RESEARCH

Physics Informed Neural Networks applied to Maxwell's Equations | *May 2025 - Present*
- Currently working on a research project to apply PINNs to predict the Electromagnetic field distribution due to the interaction of a large number of particles, with the final goal of training a Neural Operator to predict the full system trajectory and Electromagnetic field evolution given any initial conditions.

Numerical Relativity for Gravitational Wave Frequency Prediction | *February 2025 - March 2025*
- Contributing to a research project in collaboration with researchers from Oxford, Cambridge, and UCL. The project focuses on applying numerical methods for partial differential equations to efficiently solve the Einstein Field Equations, with the goal of computing the frequencies of gravitational waves generated by various massive-object interactions, such as black hole collisions. I am also exploring the use of Physics-Informed Neural Networks (PINNs) to accelerate specific parts of the computation while maintaining accuracy within the required error range.

MuZero Task Allocation for SBCs, *Undergraduate Thesis Project | December 2023 - July 2024*
- Worked on a team applying the MuZero algorithm to increase the efficiency of Task Allocation to the CPUs of multiple Single Board Computers working in tandem, specifically in the context of avionics.
- Increased the speed of Episode calculations for the Monte Carlo Tree Search by 300% by implementing multiprocessing procedures. Integrated the Weights and Biases API for hyperparameter logging and visualization, and researched 8 research projects based on efficient Task Allocation to find comparisons for our results.
- Gained expertise in the MuZero and AlphaZero algorithms, including the applications of CNNs and the MCTS algorithm, deepened my understanding of Reinforcement Learning, covering Markov Decision Processes, Value functions, and Actor-Critic methods, and explored hyperparameter tuning techniques.

Neural Networks for Data Analysis, *Individual Project | September 2023 - December 2023*
- Engineered and optimized neural networks in C++ using CUDA for parallel computation, achieving over 100x training speedups on common Kaggle datasets.
- Worked with Feedforward, Convolutional, and Recurrent Neural Networks, as well as Autoencoders and traditional machine learning models.

Advanced Algorithm Visualization, *Individual Project | April 2023 - May 2023*
- Developed an interactive algorithm visualizer using React to explore and demonstrate competitive programming techniques and sorting algorithms.
- Utilized the React Framework to visualize common algorithms and data structures such as sorting algorithms, graph traversal algorithms, Graham Scan algorithm, and applications of Backtracking such as for Sudoku solutions.

AWARDS AND COMPETITIONS

- Won medal at the South East Asian Mathematics Competition, an international three-day competition.
- Won Gold and Silver medals for debate at the World Scholar's Cup international round in Vietnam, a debate competition for high school students, and qualified for the world finals held in Yale University.
- First Place in ESF Computing Conference, a Hackathon style team-based competition where participants have one day to ideate and produce an MVP for a tech-based product.
- Competed in Hong Kong Physics Olympiad and Hong Kong Olympiad in Informatics, and was a member of the Hong Kong Academy of Gifted Education.