Nikhil James **Yates**

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Education

Computer Science, York University — Hons BSc, B.E.S.T Certificate *Expected May '24*

Skills

- python (Scikit-learn, numpy, opencv, pandas), React, node/express.js, Java, C, ASM, C++, SQL, Bash, jQuery, Git
- ROS, RDBMS, linux, advanced algorithms, software architecture, TDD, Postman, Docker, AWS, financial analysis

Experience

Full-Stack Engineer/Designer — ScorpionLabz *August 2023- Present*

- Engineer and deploy scalable web and mobile applications using React, Node.js, and Express.js within a CI/CD context, enhancing client business objectives, user engagement, and improving e-commerce sales by 100%
- Leading design and development, emphasizing robustness, scalability, and maintainability with a special focus on software architecture and unique design aesthetics and user experience
- Implemented analytics and maintenance strategies using SEO and strong documentation, improving application performance and boosting long-term client retention to 75%

Private Equity Analyst (Co-op) — Define Capital *May 2023 - August 2023*

- Developed a comprehensive method for sourcing high performing SaaS and software company profiles inline with investment criteria, by evaluating financial accounting information, business strategies, and market trends
- Enhanced acquisition strategies and contributed to a multi-million dollar deal by developing financial models, engaging in negotiations, supported by weekly market research and analysis
- Automated lead generation processes with a custom-built Python tool, reducing lead identification time by >50%

Software Developer (Contract) — Essence CubeSat Mission, York University *October 2021 - January 2022*

- Built solutions for tasks handled by the CubeSat's onboard computer (OBC), focusing on space maximization and system reliability in a face-paced and high-stake environment
- Configured and optimized a FreeRTOS build for the OBC chip using C and Microchip Studio for configuration and Ubuntu for building, launching, and loading the system onto the board
- Wrote a technical justification for a satellite spin-up mitigation function that was presented to the Canadian Space Agency and helped the project pass the Test Readiness Report (TRR) presentation

IT Technician — Omira Group *Sept 2021 - April 2023*

- Diagnosed and resolved complex network issues, enhancing system reliability and user satisfaction
- Implemented and managed NAS solutions, streamlining data sharing and storage solutions for small-medium firms
- Maintained, upgraded hardware/software for over 20 devices and servers, ensuring optimal performance, security

Professional Athlete — A.S.D G.C Sora, Italy *November 2018 - May 2019*

Repertoire and Projects

Machine Learning and OpenCV Toolkit — Self-Directed Machine-Learning Programming *Jan 2024-Present*

- Developed a home price estimation tool using a linear regression model and implementations of SVMs, perceptrons, and random forests. Currently working on a tool to predict project costs for residential contractors
- Used OpenCV to control the 6 actuators of the Kinova Gen3 arm based on hand and head movements

Large Language Models Based Test Case Generation — Research Project, York University *Sept 2023 - Present*

- Led by a distinguished professor in the Electrical Engineering and Computer Science department, my research builds on a previous project (in collaboration with Meta) and I perform a comprehensive analysis of the differences between traditional and LLM-generated python tests in both commercial and non-professional contexts
- Presented my research and conclusions in front of a panel of researching faculty, staff, and students. Grade: A+.

Path Planning and Execution Simulation — Robotics Project *Nov 2023 - Dec 2023*

- Created an RRT-based path planning algorithm for a robot simulation in 3D space to navigate a maze
- Programming was done in python using the *numpy* and *scipy* libraries. A black and white 'blueprint' image of the maze was fed to the system, which produced a set of waypoints and a clear path from origin to goal that our robot used to successfully maneuver the 3D maze in the Gazebo simulation environment.

Motor Drive System Using PWM — Embedded Systems Project *Jan 2023 - May 2023*

- Remote-controlled PWM motor driver using the Dragon-12 light training board, a 6V DC motor, and MC9S12 chip
- Wrote software for the board using my understanding of the chip's port configuration, the different clocks, channel polarity, duty cycles, periods, pre-scalers, and port manipulation using DDR registers
- Developed 2 different drive modes (sport and eco) each with 5 gears and had safety features that prevented 'bad' gear shifting and forced to motor to slow to a stop to prevent motor damage using my proficiency with C.

Blockchain and Cryptocurrency Project — Project *Completed Spring 2022*

- Built with node.js, this project follows blockchain programming principles and simulates the backend (server-side) of a cryptocurrency; documenting transaction history/details (pooling), transaction mining, chain validation and replacement, maintaining a node's wallet, and security stops
- Focused on transaction and wallet encryption and engineered my own version of the SHA256 algorithm
- Backend communication done via end-point communication with Postman API calls. Front-end in development.