Adi Karkera

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Education

University of Waterloo — Waterloo, ON
Bachelor of Mathematics in Statistics and Computational Math — *Sept. 2023 – May 2027*

Experience

Cybersecurity Intern — May 2025 – Present
Royal Bank of Canada — *Toronto, ON*

- Automated network compliance workflows using Python and shell scripting to continuously scan infrastructure for known vulnerabilities, reducing manual workload and detection time across hundreds of hosts
- Redesigned and expanded an internal risk dashboard using SQL, integrating live threat feeds and security metrics to improve real-time risk visibility and support proactive, data-driven decision-making across the security team
- Collaborated cross-functionally with engineers, analysts, and DevOps teams to identify, document, and remediate security risks, ensuring alignment with NIST, CIS, and internal compliance frameworks

Security Engineer Intern — Jan 2025 – Apr 2025
Hatch — *Mississauga, ON*

- Engineered a Python-based automation framework to standardize and accelerate the deployment and configuration of safety infrastructure across global Hatch environments, thereby reducing implementation times by 80%
- Conducted internal penetration tests and leveraged automated vulnerability scanners, to identify misconfigurations and CVEs in routing and firewall rules, leading to a 12% reduction in attack surface exposure
- Monitored and analyzed security logs using SIEM tools and Wireshark to detect anomalies and debug protocol-level issues in production systems

App Developer Intern — Jun 2022 – Aug 2022
OurWaveHub — *Toronto, ON*

- Architected a mobile application framework focused on health issue diagnosis using Swift and Xcode
- Led project planning and scheduling, coordinating tasks and timelines through workshops and team projects
- Risk management and problem-solving during development, ensuring successful delivery of app features

Projects

Pokedéx | *Python, TensorFlow, OpenCV, Pandas, Numpy*

- Developed a Pokémon identifier using AI to classify and retrieve Pokémon information from images with a classification accuracy of 73% within a ˜5 second response time
- Utilized machine learning techniques such as data augmentation, transfer learning, and hyperparameter tuning to train and optimize a convolutional neural network model
- Achieved a 43% reduction in error rates by applying techniques such as model fine-tuning, cross-validation, and learning rate scheduling, ensuring higher accuracy and more reliable predictions due to iterative optimization and performance evaluation

FootyStock | *Next.js, Typescript, PostgreSQL*

- Designed and developed an interactive web application simulating a real-time stock market for 500+ soccer players
- Engineered a scalable backend that autmated data ingestion and processing from live sports APIs, updating player stock values in real time and supporting supporting thousands of updates per day
- Built a modern, responsive frontend with Next.js, featuring advanced data visualization (candlestick charts, leaderboards, and portfolio summaries) to enhance user engagement and retention
- Implemented algorithmic trading logic to realistically simulate market volatility, price fluctuations, and supply-demand mechanics, increasing platform realism and educational value

Technical Skills

Languages: Python, Bash, JavaScript, HTML/CSS, SQL, Java, TypeScript, C, Swift
Frameworks & Libraries: Numpy, TensorFlow, Pandas, OpenCV, Next.js, React, Node.js
Developer Tools: Git, GitHub, SQLite, Linux CLI, ServiceNow, Azure, AWS, Wireshark