Yash Swaminathan

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TECHNICAL SKILLS

Languages: Python, C++, JavaScript, HTML/CSS, SQL
Frameworks: React, Node.js, Express.js, FastAPI, Tailwind CSS
Developer Tools/Platforms: Visual Studio Code, Github, Figma, Solidworks, Bitbucket, Jira, Docker, Poetry, Lucid
Libraries: NumPy, Pandas, TensorFlow, Pytest, PyYAML, jsonschema, Scapy, PyShark, Uvicorn, Pydantic

EXPERIENCE

Software Developer Intern (CO-OP)   Jan 2025 – Apr 2025
Turing   *Calgary, AB*
- Developed **FastAPI** endpoints and unit tests to ensure reliable API behavior and maintain high test coverage across critical features.
- Resolved over **20+** technical issues, including Docker misconfigurations, API bottlenecks, and flaky tests, improving system stability and deployment reliability.
- Streamlined project workflows by using **Bitbucket** for version control and **Jira** for task management, enhancing team coordination and delivery speed.

Data Science Intern   Sep 2023 – Jan 2024
Gradiant (Synauta)   *Calgary, AB*
- Engineered a Python-based analytics pipeline to uncover operational patterns in cartridge filter data, driving a **15–20%** gain in filtration efficiency.
- Developed and automated the cartridge filter substitution process, reducing human intervention by **90%**
- Optimized replacement schedules to improve filtration efficiency, achieving a **10%** boost in performance.

Property Management Intern   Sep 2020 – Aug 2024
Adroit Consulting   *Calgary/Edmonton, AB*
- Contributed to over **30+** move-in, move-out, and property cleaning processes, ensuring a **100%** on-time transition for incoming and outgoing tenants.
- Organized internal reporting and financial tracking, calculating net revenue and expenses for a **20+** property condominium portfolio.
- Coordinated and executed **50+** maintenance requests, achieving a **95%** tenant satisfaction rate.

PROJECTS

Network Anomaly Detection System | *Python, Scapy, PyShark, TensorFlow, Sklearn, React, Tailwind CSS*
- Built a real-time threat detection system with **deep autoencoders** and **isolation forests**, achieving **94.6% detection accuracy** on synthetic and live network traffic.
- Engineered a full **feature pipeline** with entropy, session statistics, and categorical encoding, enabling high-fidelity ML input from raw **Scapy** and **PyShark** packet captures.
- Deployed a **FastAPI** backend and trained models in **TensorFlow** for online inference; connected to a dynamic **React + Tailwind** dashboard for real-time anomaly visualization.
- Simulated attack flows (port scans, data leakage) and reduced detection latency by **42%** using model threshold tuning and flow batch optimization.

File Management & Validation System | *Python, FastAPI, PostgreSQL, React, Docker, Poetry*
- Engineered a full-stack solution integrating a **FastAPI** backend with a **React** frontend and **PostgreSQL** database for seamless YAML config management and validation, containerized with **Docker** and produced via **Poetry**.
- Implemented YAML file validation using **PyYAML** and **jsonschema**, streamlining error detection and enforcing compliance with predefined configuration standards
- Designed intuitive UI components with **React**, **Formik**, and **Yup** to deliver real-time form validation and an enhanced user experience for efficient configuration handling.

EDUCATION

University of Waterloo   Waterloo, ON
Bachelor of Applied Science (BASc) in Systems Design Engineering   *Sep. 2024 – Present*

Relevant courses

SYDE 223 - Data Structures and Algorithms, SYDE 101L - Solidworks, SYDE 121 - Digital Computation (C++)