Yash Jain

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SKILLS

Languages: C, C++, Python, Javascript, Typescript, MATLAB, Java, SQL, Bash

Technologies: NumPy, React, Node.js, PyQt, VisPy, Matplotlib, Pandas, PyTest, PyTorch, OpenGL, Git, Websockets

EXPERIENCE

Waterloo Rocketry **Sep 2025 - Present**

Software Developer *Waterloo, ON*

- Designed a type-safe telemetry serialization protocol using Pydantic, enforcing runtime schema validation across 30+ sensor fields to eliminate malformed packet errors
- Migrated legacy backend Python services to **TypeScript**, improving system maintainability and decreasing the amount of training required for new members to contribute
- Established testing framework using Pytest, achieving high code coverage for message parsing, which was used to **identify three** deprecated protocols in the codebase and will be used for precompetition confidence checks

Electrium **Sep 2025 - Present**

Software Developer *Waterloo, ON*

- Secured system infrastructure by resolving Vercel deployment failures by implementing input validation for text inputs and file attachments and identifying exposed Firebase api keys in the public repository
- Optimized site loading by eliminating unnecessary pin rendering , reducing active DOM elements by 50%

Space and Atmospheric Instrumentation Lab **Jun 2023 - Aug 2024**

Software Engineering Intern *Daytona, FL - remote*

- Engineered a real-time telemetry parsing engine for NASA funded SEED mission rockets, leveraging Python and NumPy to process asynchronous bit-masked packets at a throughput of **120k+** udp packets per minute
- Reduced missed packets by **90%** by refactoring the legacy MATLAB plotting suite with VisPy and OpenGL, achieving a **4x increase** in rendering frame rates for high speed data streams
- Leveraged NumPy for vectorized processing of raw sensor data, streamlining the conversion of hardware-level bitstreams into units for mission control analysis

Salish Robotics Team **Sep 2022 - Jun 2025**

Team Captain and Programmer *Vancouver, BC*

- Engineered autonomous navigation routines in C++ by implementing PID controllers for precision steering and Pure Pursuit for smooth path-tracking, optimizing for consistency during competition
- Managed the 3D design lifecycle in OnShape to coordinate a team of 8 by defining clear mechanical interfaces that allowed hardware and software development to proceed in parallel
- Secured 2 league awards for team's approach to analyzing past failures and adaptive planning

PROJECTS

Wunder Challenge

- Engineered a hybrid CNN-LSTM architecture in PyTorch to extract spatio-temporal features from high-frequency Limit Order Book (LOB) data, capturing both local price volatility and long-term temporal dependencies
- Optimized signal-to-noise ratios by implementing custom preprocessing for data snapshots, outperforming 96% of 3,000+ competitors in a Pearson Correlation-based mid-price prediction challenge

EDUCATION

University of Waterloo **Sep 2025 - Apr 2030**

Candidate for Bachelor of Software Engineering *GPA: 3.9/4.0*

- USACO Gold, Duke of Edinburgh Silver, Engineering Ambassador