

Yash Patel

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EDUCATION

Simon Fraser University

Burnaby, BC

Bachelor of Science in Computing Science (Expected Graduation: April 2028)

January 2024 – Present

- Dean's Honour Roll - Spring 2025, Spring 2026
- Relevant Coursework: Machine Learning, Advanced Methods in Natural Language Processing, Data Structures and Algorithms, Systems Programming, Data Communications and Networking

EXPERIENCE

Freelance Web Developer

March 2023 – June 2023

Remote

- Developed responsive full-stack e-commerce applications using Flask, Django, Bootstrap, JavaScript, and HTML/CSS
- Built dynamic product catalogs, shopping workflows, and checkout interfaces, delivering multiple client websites within 7 weeks per project
- Integrated PayPal REST APIs for payment authorization and capture flows, with webhook-based transaction status handling
- Developed server-side functionality for product management, session handling, form validation, and database operations across multiple e-commerce applications

PROJECTS

CoRide | *MySQL, Python, Redis, Brevo, JavaScript*

January 2026 – July 2026

- Developed a Flask/MySQL carpool platform with parameterized SQL, session-based authentication, and role-based ride management
- Implemented SFU email verification and password reset with Brevo, bcrypt, and HMAC-SHA256 OTP validation
- Integrated Redis-backed rate limiting for authentication and OTP endpoints with per-IP abuse controls
- Developed a transactional seat-management system with MySQL row locking to prevent inconsistent ride-capacity updates

HazardWatch | *Python, Flask, Redis, JavaScript, Upstash*

August 2025 – October 2025

- Developed Flask/Redis data pipelines processing 5,000+ earthquakes and 2,000+ wildfire detections, achieving sub-125 ms median cached API latency
- Implemented shared Redis caching with 10-minute background refreshes, 30-minute TTLs, distributed locking, and stale-cache fallback to minimize redundant upstream API calls
- Parallelized NASA FIRMS and USGS API ingestion, reducing combined refresh latency from 2.37 s to 1.32 s
- Developed a Leaflet geospatial interface with marker clustering, magnitude filtering, geolocation, and OpenRouteService routing with thermal-hazard avoidance

Lossless Image Compression Engine | *Python, Tkinter, NumPy*

June 2025 – August 2025

- Developed a multi-stage lossless compression algorithm combining Paeth prediction, RLE, and Huffman coding, achieving up to 77% compression across various BMP image types (4-24 bit/pixel)
- Developed a Tkinter GUI with real-time file size and compression-ratio metrics
- Implemented efficient Huffman tree serialization, reducing tree storage overhead by 60-80% compared to standard object serialization methods
- Designed dynamic technique selection based on image characteristics, improving average compression ratios by 15-25%

TECHNICAL SKILLS

Languages: Python, C, C++, Java, JavaScript, SQL, Bash, R, MATLAB, x86-64 Assembly, HTML/CSS

Frameworks: Flask, Django, LangGraph, Vue.js, Bootstrap

Developer Tools: Git/GitHub, Docker, AWS (EC2, S3, RDS, Lambda), GitHub Actions, Linux/Unix, Jupyter Notebook, VS Code, Vim, REST APIs, MySQL, Redis, Figma, Postman

Libraries: PyTorch, NumPy, Pandas, Matplotlib