Satwik Shresth

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Education

Drexel University   Jan 2021 — June 2025
Bachelor's of Science, Computer Science   *Philadelphia, PA*
• Cumulative GPA: **3.83/4.0** | Dean's List, A.J Drexel Merit Scholarship,
• Relevant Coursework: Advanced Web Development, Concurrent Programming, Database Systems, Discrete Math, Linear Algebra, Machine Learning, Multivariable Calculus, Network Programming, Software Architecture

Work Experience

Software Engineer Co-op   September 2023 — March 2024
Susquehanna International Group   *Bala Cynwyd, PA*
• Built a **C++** protocol metrics publisher that tails multiple files to process **5.8 billion** messages everyday
• Developed a concurrent **Python** Kafka consumer to process **500+ million** messages in 5 minutes, increasing speed by **9x**
• Developed a **FastAPI** proxy to integrate Grafana with an internal messaging platform via **RESTful API**
• Designed **CI/CD pipeline** for **Kubernetes** deployment and automated testing for projects on GitLab

Software Engineer Co-op   September 2022 — March 2023
OPEX Corporation   *Moorestown, NJ*
• Engineered async Windows IPC solution for **C++** applications, reducing latency by **80%**
• Developed **Python** tool integrating **15,000 pages** of **Doxygen** documentation into **C++** robot application
• Conducted end-to-end testing and integration of warehouse robotic systems to enhance operational reliability and uptime

Teaching Assistant   September 2022 — March 2025
Drexel University   *Philadelphia, PA*
• Mentored over **150 students** during weekly labs and tutoring hours, helping them grasp complex concepts
• Developed grading tool with **Python** and **JavaScript** to automate assignment compilation, reducing grading time by **80%**
• Created extensible **Python** plugin architecture enabling custom compilation workflows and automated assessment tools

Projects

OpenMario (openmario.com)   **Stack**: Docker, Node.js, React.js, TanStack Query, Meilisearch, Postgres, Python
• **Open-source** platform for Drexel students to search job listings, courses, and professor ratings in one place
• Scraped and transformed **50K+ webpages** of raw data into a structured schema optimized for cross-reference features
• Implemented **millisecond-latency** search using **Meilisearch** with zero user data storage for privacy and performance
• Achieved early product validation with **100+ weekly active users** and **220+ wage submissions** without marketing

Inspiration (gitlab.cci.drexel.edu/inspiration)   **Stack**: Docker, React, TanStack, S3, Celery, Redis, Postgres, Python, Playwright
• Led **5-student team** to build privacy-focused plagiarism detection system designed to replace MOSS at Drexel University
• Implemented **Celery** work-queues to balance workload, delivering results **10x faster** with improving user experience
• Developed **Rust extensions** for Python, speeding up computation-heavy algorithms by **2x**
• Designed self-managed **S3 infrastructure** for granular permissions and optimized streaming reducing backend load
• Designed graph-like relational database schema optimized for interactive visualizations

Shelved (shelved.satwik.dev)   **Stack**: Docker, Node.js, Knex.js, Postgres, JavaScript, EJS
• Led a team of **4** to design, implement and self-host a full-scale books and media tracking website using just JavaScript
• Built custom authentication with **JsonWebToken**, secure password hashing, and anti-bot measures to ensure platform security
• Integrated multiple APIs, normalizing data to support social features like sharing, following, review and ratings
• Developed **LRU caching** that reduced API-dependent page load times by **65%** and improved overall site responsiveness

Skills

• **Programming Languages**: C, C++, Go, Haskell, Java, JavaScript, Python, SQL, TypeScript
• **Frameworks**: Express, React.js, Redux, Next.js, TanStack, FastAPI, Svelte, SQLAlchemy, NumPy, Redux, TanStack Query, Zod
• **Tools**: Docker, Kubernetes, Git, CI/CD (GitLab, Jenkins), Elasticsearch, Kafka, Redis, Postgres, Nginx, Vim, S3, Playwright, Typst