

# 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:** Adv Web Development, Artificial Intelligence (TA), Concurrent Programming, Data Structures (TA), Database Systems, Discrete Math, Linear Algebra, Machine Learning, Network Programming (TA), Software Architecture (TA)

## WORK EXPERIENCE

### Software Engineer

July 2025 — Current

Sharing Excess

*Philadelphia, PA*

- Developing logistics PWA using **Hono**, **React.js**, and **TypeScript** to streamline food distribution operations
- Modernized legacy **JavaScript** to **TypeScript** with **TanStack**, improving responsiveness by **30%** and reducing codebase by **20%**
- Architected database schema for complex donation and partial redistributions workflows, improving query performance 30%
- Developed kanban-style redistribution system with drag-and-drop interface for tracking donations through delivery pipeline
- Integrated **OpenAI** with database with custom XML prompt engineering, automating SQL query generation and enabling custom data insights for non-technical users

### Software Engineering Co-op

September 2023 — March 2024

Susquehanna International Group

*Bala Cynwyd, PA*

- Developed a **C++** protocol metrics publisher to tail multiple log files to generate data frames for **5.8 billion+** messages/day
- Built a **Python** orchestration layer with **C++** bindings to aggregate metric data-frames and stream real-time data on **Grafana**
- Created a **Python FastAPI** proxy server to integrate critical alerts with an internal messaging platform via **RESTful API**
- Developed a concurrent **Python Kafka** consumer to process **500+ million** messages in **5 minutes**, increasing speed by **9x**

### Software Engineering Co-op

September 2022 — March 2023

OPEX Corporation

*Moorestown, NJ*

- Implemented asynchronous windows inter-process communication, connecting multiple **C++** applications with proprietary protocol, reducing alert latency by **60%**
- Developed a **Python** tool using **Doxygen** to integrate **15,000+** dynamic Windows Help files into a **C++ MFC** application
- Wrote comprehensive unit and integration tests for robot's host application, increasing test coverage and operational reliability

## PROJECTS

### OpenMario ([openmario.com](https://openmario.com))

**Stack:** Docker, Node.js, React.js, TanStack Query, Meilisearch, Neo4j, Postgres, Python

- Open-source platform for Drexel students to search job listings, salaries, courses, and professor ratings in one place
- Scraped and transformed **50,000+ webpages** of raw data into a structured schema optimized for cross-reference features
- Implemented millisecond-latency search using **Meilisearch** and **Neo4j** graph database for relationship-based queries and enhanced data connections
- Achieved early product validation with **100+ weekly active users** and **220+ wage submissions** via word-of-mouth

### Inspiration ([gitlab.cci.drexel.edu/inspiration](https://gitlab.cci.drexel.edu/inspiration))

**Stack:** Docker, React, TanStack, S3, Celery, Redis, Postgres, Python, Playwright

- Led **5-student team** to build open-source plagiarism detection end-to-end system currently utilized by **5+ Drexel professors**
- Set up **S3** infrastructure for client-side document streaming, minimizing server overhead while enforcing strict authorization
- Redesigned database schema, enabling real-time visualizations of document similarities, improving query performance by **60%**
- Integrated **Celery** work-queues to offload computation from **TypeScript** backend to **Python** workers, delivering **10x faster** results while maintaining seamless integration
- Developed **Rust** extensions for **Python**, accelerating winnowing algorithm by **2x**

## SKILLS

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