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)   **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 **260+ wage submissions** via word-of-mouth

Inspiration (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