

Satwik Shresth

satwikshresth@gmail.com | github.com/satwikShresth | linkedin.com/in/satwik-shresth | satwik.dev

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 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 OpenTelemetry 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

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%**

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, 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** with zero user data storage for privacy and performance
- Achieved early product validation with **100+ weekly active users** and **220+ 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

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, 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