

# Kanishk Sachdev

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## EXPERIENCE

### Software Engineer

July 2026 – Present

*Loop*

*New York, NY*

- Architected a **line-item adjustments engine** on the **Nest.js** billing service that runs across every invoice on the AP path, letting customers withhold disputed charges at line-item granularity across **\$3.52B** of invoices in 2026
- Build **Temporal** workflows spanning **100M+ executions/day**, including a resumable, cursor-chunked cross-tenant resync that reprocessed **500K+ edges** and cut runtime from **3 days to 12 hours**
- Built **payment-run routing** that moves payments across a path carrying **\$1.007B across 146K payments**, recovering payments stranded in the wrong run
- Rebuilt the partner-facing invoice list on a paginated entity-table framework for **3,556 tenants**, backed by a new **OpenSearch** schema indexing **13.58M invoices** and **692M line items** to resolve invoice and payment status in real time

### Special Projects Developer

May 2025 – May 2026

*Penn State THON™*

*University Park, PA*

- Shipped **timeline.thon.org**, a shift-management platform scheduling **16,500+ volunteers** across **1M+ shifts**
- Cut shift-query DB load by **75%** by keying the **Redis cache** on user permission sets rather than per-user, exploiting shared roles across **hierarchical RBAC** with signal-based invalidation
- Developed **Vue 3 + TypeScript SPA** with virtualized calendar, recurring-shift UI, and client-side **ICS/Excel** export
- Containerized Django and Celery workers on **AWS ECS + Aurora**, with **GitHub Actions** running CI and deployments
- Optimized **Warewolf**, the inventory-management tool's **Django backend** with data denormalization, reducing data load times from **5+ seconds to under 10ms**

### Software Development Engineering Intern

May 2024 – August 2024

*Vitro*

*Pittsburgh, PA*

- Re-architected monolithic pipelined desktop app into a decoupled **service-based architecture**, separating read, processing, and streaming services for independent scaling and error isolation on **Azure App Service**
- Built stateless **React** frontend with **Consul-based backend discovery**, enabling hot-swapping between service instances for **zero-downtime fault tolerance** across **14 plants**
- Designed **Flask API** with image pre-processing pipeline, improved **edge-detection accuracy by 20%** and cut compute by **40%**

### Software Development Engineering Intern

May 2023 – August 2023

*Vitro*

*Pittsburgh, PA*

- Engineered **safety-critical vision system** in **Python** and **OpenCV** tracking glass **knurl position** to predict slip events before failure that would snap sheets out of the **float-bath process**
- Developed **multi-threaded pipeline** ingesting **16 simultaneous camera feeds**, replacing a **\$500K+ vendor tool** in-house
- Integrated with **OPC UA** for industrial control-system testing; deployed to **14 manufacturing plants**, increasing detection reliability by **30%**

### Director of Technology

January 2023 – May 2026

*HackPSU*

*University Park, PA*

- Lead development of the full **HackPSU platform** (registration, judging, analytics, and ops tooling) across **Next.js**, **NestJS**, and **GCP**, leading a **15-engineer team** delivering to **1,000+ participants** per event
- Replaced click-ops GCP setup with **Terraform-managed infrastructure** and **CI/CD pipelines**, cutting deploy time by **40%** and eliminating config drift between staging and production
- Built **inventory management tool** for **500+ items** and **bulk email system** with **SendGrid/MJML**, sending **4,000+ targeted messages** per event using automated workflows
- Implemented **distributed lock system** using **Firebase RTDB transactions** to enforce exactly-once cron execution across auto-scaling **Cloud Run** instances, preventing duplicate job runs across concurrent replicas

## PROJECTS

### HackPSU Finance Automation System | [GitHub](#)

December 2024 – February 2025

- Built full-stack reimbursement system with **Next.js**, **NestJS**, and **MySQL**, reducing processing time by **95%**
- Automated **PDF form generation** using pdf-lib, eliminating **20+ hours of manual work** per 100 reimbursements

### Map-rs: OpenStreetMap Renderer | [GitHub](#)

March 2024 – August 2024

- Rendered roads and buildings from **2.1GB OpenStreetMap data** in **Rust** with **OpenGL** with parallel processing
- Implemented **binary tile caching** achieving **sub-100ms rendering** with smooth panning/zooming at **4K resolution**
- Enhanced **A\* pathfinding** with momentum and customizable cost metrics for multimodal navigation across **8M+ nodes**

## SKILLS

**Languages:** C/C++, Python, Go, Rust, TypeScript, JavaScript, Java, SQL, HTML/CSS

**Frameworks and Tools:** Nest.js, Temporal, Django, Flask, Next.js, React, Vue, Node.js, Express, Prisma, OpenCV, Redis, Celery, Git

**Cloud and DevOps:** GCP, AWS, Azure, Docker, Kubernetes, Terraform, Cloud Run, Firebase, Nginx, GitHub Actions

## EDUCATION

### The Pennsylvania State University

May 2026

*Bachelor of Science in Computer Science and Bachelor of Science in Mathematics*

*University Park, PA*

Minor in Engineering Leadership Development