Siddharth Paul

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Education

Rutgers University September 2023 - May 2027

B.S. in Computer Science | B.S. in Physics | Minor in Mathematics

Relevant Coursework: Data Structures, Discrete Mathematics 1 & 2, Linear Optimization, Introduction to AI, Linear Algebra, Multivariable Calculus, Diff EQ, PDEs

Activities: IEEE-VEXU Robotics (President & Programming Lead), Undergraduate Physics Research, Hackathon Competitor (3× Winner)

Experience

Q-Sim Laboratory - Rutgers University Piscataway, NJ

Undergraduate Researcher, advisor Prof. Shaowen Chen September 2025 - Present

- Built end-to-end Python data-processing pipelines using NumPy, SciPy, and Matplotlib for automated spatial image-map analysis, region-of-interest extraction, and peak-detection algorithms, enabling consistent, repeatable, and scalable analysis across large, experimental datasets collected from multiple instruments.
- Developed Monte Carlo simulation and analysis tooling built around SRIM/TRIM to model complex physical processes and construct parameter-selection frameworks, translating raw simulation output into actionable, well-documented experimental parameters used to guide sample fabrication and irradiation planning decisions.
- Designed reproducible, version-controlled data workflows for a multi-instrument research lab spanning spectroscopy, microscopy, and simulation environments, standardizing analysis pipelines across inconsistent raw data formats and significantly reducing ad hoc, one-off processing scripts across the broader research group.
- Collaborated closely with a multidisciplinary research team to translate evolving experimental requirements into automated, scriptable tooling and reusable software components, reducing manual data-processing time across sample sets and freeing up researcher time for higher-level experimental design, analysis, and iteration.

Iconectiv Ericsson Bridgewater, NJ

Software Engineering Intern June 2025 - August 2025

- Built and deployed scalable Python microservices to ingest, process, and visualize distributed system telemetry in real time, automating end-to-end monitoring pipelines across multiple internal systems and reducing overall workflow runtimes by 20% while increasing engineering throughput by 30%.
- Engineered robust integrations with Tenable, GitHub, and internal lifecycle management APIs to unify security, compliance, and infrastructure data into a single centralized pipeline, delivering real-time cybersecurity insights and operational visibility for 5+ engineering teams across the organization.
- Optimized CI/CD pipelines using Jenkins and AWS CodeBuild by improving build validation logic, dependency management, and automated failure detection across multiple repositories, reducing build failures by 30% and significantly improving deployment reliability and release velocity for engineering teams.
- Developed a centralized, searchable VM inventory system tracking 100+ assets across multiple environments, accelerating infrastructure auditing, vulnerability detection, and the retirement of outdated or non-compliant systems across the broader engineering organization.

Iconectiv Ericsson Bridgewater, NJ

Software Development Intern May 2024 - August 2024

- Created a comprehensive DevOps monitoring platform tracking 200+ enterprise applications and their interdependencies, eliminating time-consuming manual audit processes through automated, continuous dependency monitoring and centralized infrastructure visibility across the organization.
- Engineered backend Python modules for automated update orchestration and security patch management, reducing patch deployment cycles from several weeks down to just hours while meaningfully improving system compliance, reliability, and operational consistency across all environments.
- Launched an interactive Ruby on Rails and AngularJS dashboard suite featuring real-time alerts, dynamic filtering, and system health visualizations, enabling engineering teams to proactively identify failures and perform preventative maintenance before incidents impacted production systems.
- Developed and deployed a metadata processing engine aggregating data across 1,000+ GitHub repositories, powering 100+ internal dashboards used by engineering teams for repository analytics, system tracking, and organization-wide operational and infrastructure insights.

Projects & Leadership

SCAR Robotics (IEEE-VEXU), President & Programming Lead 2024 - Present

- Led a 25+ person robotics team through the full engineering lifecycle, including mechanical design, embedded C++ control systems, and competition strategy, culminating in a Top 20 global finish at VEX U World Championship (2026) and a Top 25 finish in 2025.
- Designed and implemented PID motion control and X-drive holonomic control algorithms in PROS (C++), while also managing full team operations including roster selection, budget and travel grant procurement, and cross-functional coordination across mechanical, electrical, and software subteams.

AirNote 2025

- Built a full-stack AR note-taking system using FastAPI microservices, WebSocket streaming, and Firebase sync, implementing OpenCV homography and optical-flow tracking to anchor virtual boards during movement, and deployed a Gemini-powered Q&A API enabling multimodal AI interaction with live whiteboard state.

Statistical Arbitrage Simulator 2025

- Built a parallelized backtesting engine evaluating 50+ trading configurations, accelerating quantitative research cycles by 40%, integrating statistical tests and risk metrics (PnL, Sharpe ratio, max drawdown) into modular APIs, and deploying a Streamlit dashboard visualizing real-time performance across configurations.

https://statarbitsim.streamlit.app/

Myndful – AI Mental Health Chatbot (Winner of 2022 Congressional App Challenge) 2022 - 2025

- Co-founded and led engineering for an AI mental health startup serving 6,000+ monthly users across 5+ schools, architecting full-stack systems using React, FastAPI, TensorFlow, and AWS EC2 with scalable NLP pipelines.

https://myndful.vercel.app/

Awards

HackRU 2024 – First Place 2024

Built and deployed Holobrain, an AR neuroanatomy tool (Unity + C#, TensorFlow Lite) with real-time 3D model interaction.

Congressional App Challenge Winner 2022

Awarded federal recognition for Myndful, an AI mental-health chatbot adopted by 6,000+ students across 5+ schools.

Keynote Speaker at the NJASCD conference 2023

Delivered a keynote on applying AI and conversational chatbot technology to support educators, showing firsthand experience building and deploying Myndful.

Skills

Languages: Python, Java, C++, TypeScript, JavaScript, SQL, Ruby, HTML/CSS

Frameworks & Libraries: React, Node.js, Express, FastAPI, TensorFlow, OpenCV, Redux, Streamlit, WebSocket, NumPy, SciPy, Matplotlib

Cloud & Infrastructure: AWS (EC2, S3, Lambda), Docker, GitHub Actions, Jenkins, CI/CD, Linux

Databases & Backend: PostgreSQL, SQLite, Redis, Firebase

Developer Tools: Git, Jira