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 **Python (NumPy/SciPy/Matplotlib)** end-to-end data pipelines for automated image processing, ROI extraction, and peak detection across **24 datasets** from **3 instruments**, cutting per-sample analysis time from **2 hours** to **10 minutes**.
- Standardized data ingest for **4 incompatible instrument formats** into one **version-controlled** repository with a shared CLI interface, retiring **12+ one-off scripts** and making all prior analyses reproducible from raw data in a single command.
- Automated **Monte Carlo simulations** with parameterized sweeps over **85 configurations**, parsing raw output into actionable experimental parameters and reducing manual parameter selection time by **45%**.

Iconectiv Ericsson Bridgewater, NJ

Software Engineering Intern June 2025 - August 2025

- Built **Python microservices** streaming distributed-system telemetry from **8 internal systems** into real-time dashboards, replacing manual log inspection and cutting monitoring pipeline runtime **20%**.
- Integrated **Tenable, GitHub, and lifecycle-management APIs** into one centralized compliance pipeline, surfacing live CVE, ownership, and patch data for **5+ engineering teams**.
- Hardened CI/CD on **Jenkins and AWS CodeBuild** across **15 repositories** with stricter build validation, dependency pinning, and automated failure detection, reducing build failures **30%**.
- Developed a searchable **VM inventory** covering **100+ assets** across **6 environments**, exposing owner, patch level, and CVE status to accelerate auditing and retirement of non-compliant hosts.

Iconectiv Ericsson Bridgewater, NJ

Dev-Ops Intern May 2024 - August 2024

- Built a DevOps monitoring platform mapping **200+ enterprise applications** and their interdependencies, replacing a recurring manual audit with continuous automated dependency checks.
- Engineered **Python** modules for update orchestration and security patch management, compressing patch deployment cycles from **weeks to hours**.
- Launched a **Ruby on Rails** + **AngularJS** dashboard suite with real-time alerts, dynamic filtering, and system health views, letting teams catch failures before production impact.
- Created a metadata processing engine aggregating **1,000+ GitHub repositories** into **100+ internal dashboards** for org-wide repository analytics.

Projects

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

- Led a **25+ person** team across mechanical, electrical, and software subteams to a **Top 20 global finish at VEX U Worlds 2026** and **Top 25 in 2025**, owning roster selection, a **$12,000 budget**, and travel grant procurement.
- Implemented **PID motion control** and **X-drive holonomic kinematics** in **PROS (C++)**, improving autonomous routine score to **110 points** and enabling consistent path tracking within an **8 cm** error margin.

CourtLab 2024 - 2026

- Built a full-stack analytics platform over **1.09M shot locations** and **87.5k lineups** across **5 NBA seasons**, shipping shot-quality metrics, **PCA** player embeddings with **K-Means** clustering, and a gradient-boosted lineup model at R^2 = **0.71**.

YQuantum 2026 - AWS × State Street Challenge (Team QAT) 2026

- Led the classical modeling pipeline for a quantitative trading challenge, engineering **39 features** and benchmarking Ridge, Lasso, and Gradient Boosting, then fusing classical and quantum signals to move **MSE 4.55 → 2.69** and **IC 0.932 → 0.961**.

AirNote 2025

- Built an AR note-taking system on **FastAPI** microservices with **WebSocket** streaming and Firebase sync, using **OpenCV** homography and optical-flow tracking to anchor virtual boards under motion, plus a Gemini-backed Q&A API.

Statistical Arbitrage Simulator 2025

- Parallelized backtesting engine sweeping **50+ configurations**, cutting research cycle time **40%**, with Sharpe, PnL, and max-drawdown metrics behind modular APIs and a **Streamlit** dashboard.

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

- Co-founded and led engineering for an AI mental health tool serving **6,000+ monthly users** across **5+ schools**, architecting full-stack systems on **React, FastAPI, TensorFlow**, and **AWS EC2**.

Awards

VEX Robotics World Championship – Top 20 Global Finish **2026**

Led SCAR Robotics as President and Build Lead, managing roster selection, travel grant procurement, and end-to-end robot development pipeline for VEX U World Championship qualification.

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.

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