Siddharth Cherukupalli

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Education

University of Maryland, College Park — College Park, MD

Bachelor of Science, Computer Science (Minor: Tech Entrepreneurship) — *Aug 2021 – Dec 2024*

- Coursework: Parallel Computing, Advanced Data Structures, Natural Language Processing, Computer Vision, Computer Systems, Programming Handheld Systems, Algorithms, Functional Programming, Discrete Math, Linear Algebra
- Activities & Societies: Apex Quant, STICs, First-Year Innovation & Research Experience (FIRE), Hack4Impact

Experience

Nutanix | Software Engineer Intern — May 2024 – Aug 2024

- Integrated **NATS JetStream** into IAM infrastructure, enabling notifications for critical workflow operations to 3+ clients
- Deployed NATS server in a **Kubernetes environment**, enhancing scalability and reliability with YAML-based configurations
- Designed a **production-grade wrapper** in Go for seamless notifications for user lifecycle and access keys/policies operations

Semantic Guard | Software Engineer Intern — Dec 2023 – Apr 2024

- Worked on the GuardX project to simulate cyber attacks for cybersecurity of Dept. of Defense using **Docker containers**
- Streamlined workflows by implementing robust **CI/CD pipelines** and using Bash, Python to automate routine tasks
- Leveraged **Elasticsearch, Logstash, Kibana** stack to analyze logs from **Fluent Bit**, uncovering security incidents

General Atomics - Aeronautical Systems | Software Engineer Intern — Jun 2023 – Aug 2023

- Improved reliability & safety of the Air Force MQ-9 Reaper drone by contributing to 5+ Flight Critical Software modules
- Optimized Automatic Takeoff/Landing Capabilities & improved Calculated Angle of Attack/Sideslip sensor accuracy by 25%
- Automated 40 additional test cases, increasing code coverage by 20% in the Flight Simulator automation framework

Univ. of Maryland | Course Facilitator - CMSC389G: SWE Role Prep - Tools/Practices — Jan 2022 – May 2024

- Engineered Testudo Bank, a **Java Spring** banking application that 120+ students contributed to & reviewed 300+ PRs
- Followed **MVC Architecture** & Spring paradigms for robust code structure, reducing code maintenance time by 30%
- Created Docker containers & wrote Python scripts to populate **MySQL** with dummy data, enabling seamless app testing

Univ. of Maryland | Research Assistant — Jan 2023 – May 2024

- Designed advanced natural language processing models **(RNNs)** to analyze social media posts with accuracy of 95%
- Trained Machine Learning models to establish a correlation between weather data & economic damage with **R2 of 0.92**
- Adapted the Markov Chain Monte Carlo model to find patterns in 10 years of weather data with over 30,000 data points

Personal Projects (Code at github.com/s1ddh4rthc/)

Tech-Energy Stat Arbitrage Strategy | *Python (scikit-learn, Seaborn), AWS Lambda/S3* — *Machine Learning*

- Innovated a strategy for pair-trading Tech & Energy stocks, employing differential equations & Machine Learning models
- Utilized **scikit-learn**'s Elastic Net Regression to identify valuable variables & pairs with Spearman Rank Correlation > 0.75
- Generated a factor-based model that uses industry-specific coefficients, resulting in a 20% rise in stock scoring accuracy

Shell Project | *C, Process Management, Linux, Git* — *Computer Systems*

- Developed a **Unix-like command-line shell in C**, showcasing exceptional proficiency in low-level systems programming
- Implemented advanced features like **piping, subshells, and I/O redirection** by utilizing file descriptors and system calls
- Demonstrated strong problem-solving skills by creating a robust error-handling mechanism, ensuring smooth execution

Document Manipulation System | *C, File I/O, Modular Programming, Linux, Git* — *Computer Systems*

- Optimized file I/O operations, enabling seamless loading & saving of documents, enhancing data persistence & accessibility
- Demonstrated in-depth text manipulation skills, including **dynamic memory allocation**, efficient replacement mechanisms
- Streamlined user interactions and promoted seamless collaboration by implementing a user-friendly command-line interface

Technical Analysis Slackbot | *Python, YFinance API, AWS Lambda/S3* — *Software Tool Development*

- Implemented a Slackbot using **AWS** & Python APIs to return algorithmic analysis insights & whether to buy/sell a stock
- Queried over **500 times** by 30+ analysts using custom Slack command, increasing portfolio performance by 15% in last year

Dish Drop | *Swift, Python, Google Cloud, UIKit* — *iOS App*

- Designed a routing platform from restaurants to homeless shelters using **Google Cloud Firebase** to combat food wastage
- Won the **Wayfair Best Social Good Hack @ IvyHacks**, an award given to one team out of 1500+ competitors

Leadership/Involvement

Apex Quant Fund | President — Oct 2021 – Present

- Guided a team of 18 Quant Analysts using **AGILE** methodology, resulting in a 125% increase in project output and quality
- Spearheaded Research, Trading, & Software teams, with 6 analysts under each division developing highly impactful projects
- Delivered educational blog posts detailing project functionalities with 300+ reads (medium.com/@cherukusid)

Technical Skills

Languages: Java, C/C++, Golang, Python (scikit-learn, Tensorflow), Swift, SQL, HTML/CSS, JavaScript (React)
Technologies: Kubernetes, Docker, AWS, Google Cloud Platform, iOS, Java Spring, Maven, Git