

Sushma Mahadevaswamy

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WORK EXPERIENCE

Cisco Systems Inc

Austin, TX, USA

Software Engineer III

Apr 2023 - Present

- Led a team of engineers in developing a Security Metrics Dashboard, resulting in a 30% boost in decision-making efficiency; executed **advanced ETL with AWS and Tableau** and established a resilient CI/CD pipeline for streamlined development.
- Accomplished the development of a centralized **AWS WAF and network firewall**, by integrating advanced rule sets across 40+ AWS account workstreams, resulting in a 25% decrease in security incidents and ensuring robust web application protection.
- Initiated and led a network security compliance program, achieving 95% compliance in just 2 months by assuming complete responsibility for **firewall lifecycle management**, including the implementation of rule updates and configurations via Terraform.
- Drove the automation of security log integration into **Splunk** and crafted specialized dashboards for enhanced network monitoring, achieving a 40% improvement in threat detection and response
- Spearheaded FIPS compliance in **AWS GovCloud by crafting SCPs** to enforce exclusive use of **FedRAMP**-authorized services, ensuring stringent adherence to federal security standards.
- Engineered FIPS-compliant, hardened **Docker** images with multi-stage builds for a lean yet secure footprint; automated image updates to maintain a secure, vulnerability-free deployment environment consistently.
- Architected a proof-of-concept AI document analysis tool with **Language Models**, aimed at automating information extraction to streamline security clearances, potentially boosting Cisco's operational efficiency and customer service delivery.

Amazon

Seattle, WA, USA

Software Development Engineer Intern

May 2022-August 2022

- Achieved full CD on a deployment pipeline and refactored outdated integration tests in Java, with latest frameworks of Selenium and Appium. This reduced the time to ship to production by 12% and increased the code quality
- Averted multiple SAS risks by pruning the deprecated software package across amazon business pricing application
- Implemented TOTP algorithm using RFC 6238 standard to achieve 100% automation in UI integration tests in all environments
- Assisted in developing a discount optimization engine which uses linear regression and ortho ML to predict product demand, based on prices and quantities. This facilitated to determine an optimal discount plan for vendor products on Amazon Business
- **Winner** of Amazon hackathon in Operational excellence category out of 326 participating teams across NA, EU and APAC regions.

AGCO

Champaign, IL, USA

Web IoT Software Developer Intern

Nov 2021-May 2022

- Devised an ETL pipeline to parse AWS CloudWatch logs using AWS Kinesis Firehose, Glue, Lambda and automated the infrastructure deployment through CDK scripts developed in Typescript.
- Designed customer usage data dashboards in Tableau and AWS QuickSight with interactive visualizations to provide management actionable insights on licensing the IoT API
- Represent AGCO in Student Panel at AgTech Innovation Summit 2022, Champaign with more than 300 agriculture industry pioneers across 54 companies
- Awarded scholarship from AGCO agriculture foundation (AAF) for excellent display of professional skills in agtech software development

Cisco Systems India Private Limited

Bengaluru, KA, India

Software Engineer II

Jan 2021-Aug 2021

- Handled product **security** baseline compliance of cloud application, across **6 cross-geographical teams** based in India and US, through effective **communication and collaboration** in drafting requirements, problem analysis, and solution implementation
- Devised strategies to mitigate risks to acceptable levels, after security **threat modeling** and Pentesting to identify vulnerabilities
- Achieved 88% reduction in code vulnerabilities by automating application vulnerability assessment into existing CI/CD process using **Shell scripting** and **Jenkins**
- Designed Spark applications in **Python** for Data preprocessing and ML Algorithms such as K-means, Random Forest, KNN
- Architected AWS solution for multi-region setup of cloud application to adhere to data sovereignty, and automated the data migration between AWS regions using **AWS DMS** and **Transit gateway** resulting in seamless expansion to EMEA and Australia region
- Upheld **Agile** methodology principles by leading daily scrum ceremonies, and **organizing cross-team collaboration meetings**
- **Mentored** 8 new hires and conducted in-class training on technologies to facilitate their transition to the corporate environment
- Completed **AWS Certification** in Solution Architecture and received seven recognition awards from managers and colleagues at Cisco for '**Best Team Player**' and '**Best collaborator**'

Software Engineer I

Aug 2018-Dec 2020

- Migrated Cisco native web application from on-premises to **AWS** cloud within a timeframe of 2 months resulting in 0 downtime and increased reliability, attracting hundreds of new customers.
- Design and implement security controls and policies of the cloud application on AWS using security groups, WAF, IAM and NACL rules
- Developed next-generation Cisco device crash prediction system using six highly optimized **Machine Learning(ML) algorithms** by training over 2.7 million device dataset, resulting in pre-emptive crash avoidance of more than 800 Cisco devices.
- Handled large scale data management in AWS by designing table schemas for **DynamoDB**, and Aurora (**MySQL**), and engineering queries for sub 1s insertion and retrieval.
- Designed and developed **microservices**, and schedulers using **Spring Boot**, and **Java**, managed them using AWS cloud technologies such as AWS EC2, Lambda, ALB, Route 53, CloudFront, S3, EKS & API Gateway to handle more than 500 Cisco customers and partners.

- Improved a **web server application's** performance and scalability by 78% after redesigning a legacy monolithic architecture-based application to microservices driven architecture implemented using Java.
- First in the organization to streamline the application deployment process by **automating** Continuous Integration and Continuous Delivery (CI/CD) using **Docker, Kubernetes, Helm chart, CircleCI, and Drone**
- Enhanced the application readability and the ease of debugging by designing and developing common logging standards to be incorporated in the **Software Development Life Cycle (SDLC)**
- Tightened the security of stream data transfer on **PaaS** by creating a secure connection to external **Kafka** brokers from **NiFi**, and further optimized the data transfer by automating the deletion of unused NiFi threads, resulting in 44% improvement of execution time.

PROJECT

- Loan Default Prediction Model:** Architected a machine learning pipeline for RedRock Financial to predict the probability of loan default by a customer based on their financial history. The process involved EDA, Feature Extraction on unstructured data from Lexis, Megasys using AWS SageMaker. The XGboost model had an accuracy of 93% with hyper parameter tuning, PCA increasing F1 score significantly (by 7%).
- AgroGen:** Designed a website that predicts the future price of food using Random Forest Regressor based on features such as location, inflation, weather, and historical prices which allows a farmer to manage their produce, and view the price fluctuations of their produce for a week. Responsible for the development of inventory management, user authentication system (GCP) and design of backend (python, flask) and frontend (React, tailwind CSS) of application.
- Olympic Performance Analysis:** Analyzed the performance of countries in olympics based on indicators like Medals won vs Polity score, using pandas, numpy, plotly and ipywidgets libraries. To improve code efficiency, parallel processing was employed for graph plots.
- Sentiment Analysis of Drug Reviews:** Identified the top drugs for each disease based on the drug review data and assessed the sentiment using an ensemble classifier of Random forest and Kmeans. The process involved data cleaning using regex, stemming, lemmatization and the sentiment was analyzed by finding ngrams upto level 4 with application of vader sentiment analyzer.
- Centralized review system for universities:** Developed a centralized review system on GCP, allowing students to grade courses, professors and departments. Designed database schema to manage Student, Professor, Courses and Department data and improved query performance using indexing. In addition to that, Implemented auto-complete feature by saving search results in Memcached key-value store and processing using python.
- CHOMP Game:** Developed a two-player strategy game in python and pygame using reinforcement learning to train the machine for different board configurations. Applied Sprague-Grundy Theorem from combinatorial game theory to prove first player advantage.

SKILLS

- Languages & Frameworks:** Core Java, Python, R, Spring-boot, Spring, Junit, MATLAB, Angular, TypeScript, Selenium, PyGame
- Database:** MySQL, PostgreSQL, DynamoDB, AWS Aurora
- Big Data:** Hadoop, Kafka, ElasticSearch, NiFi, Jupyter Notebook
- DevOps Tools:** Docker, Kubernetes, Helm, Drone, CircleCI, GitHub, Bitbucket, GitLab, TravisCI
- Operating Systems:** Linux, macOS, Windows
- Miscellaneous:** Microsoft Office, Postman, Tableau, Jira, Rally, Azure Devops, AWS, GCP, NLP

EDUCATION

University of Illinois at Urbana-Champaign, Champaign, IL, USA

Master of Science in Information Management (**GPA: 4.0/4.0**)

Dec 2022

Relevant Courses: Data Statistical Models, Text Mining, Database Systems

Rashtreeya Vidyalyaya (R.V.) College of Engineering, Bengaluru, KA, India

Bachelor of Engineering in Electronics & Communication Engineering (**GPA: 9.36/10.0 - Rank 10/224**)

May 2018

Relevant Courses: Object oriented programming, Data structures and algorithms