# Shivani Hariprasad

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## Experience

**Graduate Student Researcher – Caida** San Diego, USA | July 2023 – Present

- Launched a global measurement pipeline automating ping experiments from 38 GCP and 36 Azure regions to all Internet router IP addresses, aggregated results centrally to deduce host names of various domains applying CAIDA's Hoiho tool.
- Developed Terraform scripts to automate VPC, instance, security group creation, custom script execution on GCP and Azure.
- Automated mining of IXP router server data to uncover hidden IXP peering links and construct a Autonomous System topology.

**Software Development Engineer – McAfee** Bangalore, India | Jul 2019 – Aug 2022

- Utilized Microservices, Java, SQL to develop core features in Software Catalog Service and Automatic Threat Response of security management platform named McAfee ePO on AWS, leading to 35% increase in NPS score of Mvision ePO.
- Enhanced ePO security by updating Java code, Tomcat and Bouncy Castle libraries, and implemented compatibility check feature for existing products and extensions on ePO with the latest Tomcat 9 version.
- Leveraged Java and Spring MVC to model telemetry data collection from ePO-managed endpoints, published via Kafka to ElasticSearch, and visualized with Kibana, resulting in proactive troubleshooting and 30% reduction in customer cases.
- Launched an active system migration feature using Java and SQL scripts within an ePO extension, leading to a 30% boost in cloud adoption by enabling seamless customer resource migration from legacy ePO to MVISION platform.
- Led a team of 2 to develop features for the ePO updater tool, including hotfix creation, platform library support, rollback support in case of failure and internationalization leading to a 90% increase in customer adoption of the latest ePO.
- Implemented CI/CD pipeline for Cumulative Updater Tool using Groovy, TeamCity, Jenkins, thus resulting 80% reduction in manual work and 75% increase in efficiency.

**Software Development Intern – McAfee** Bangalore, India | Jan 2019 – Jun 2019

- Developed a cumulative updater tool using NodeJS, Groovy and Electron for an on-premise security management platform, McAfee ePO, thereby contributing to enhanced NPS score of 40.

**Software Development Intern – Liventus** Bangalore, India | Jun 2017 – Aug 2017

- Designed a Digital Library website focused on storage and maintenance of digital materials using ASP.NET, C# and SQL.

## Education

**University of California San Diego** Sep 2022 – Dec 2023

Master of Science - Computer Science (GPA: 4.0)
*Coursework* : Graduate Networked Systems, Virtualization, Recommender Systems, Principles of Artificial Intelligence
*Graduate Teaching Assistant*: Computer Architecture(MIPS, ARM, Caching), Web Client Languages(HTML, CSS, JavaScript)

**R V College of Engineering** Aug 2015 – May 2019

Bachelors of Engineering - Computer Science and Engineering (GPA: 9.57/10)
*Coursework* : OOPS, Databases, Data Structures, Algorithms, Operating Systems

## Projects

**'SurfStore': Scalable and Fault-tolerant Dropbox** | *Go, gRPC*| Link

- Devised a cloud file syncing tool using Go and gRPC.
- Implemented a scalable block storage system using consistent hashing for data block mapping, accommodating up to 100 nodes and ensured fault tolerance and metadata consistency using the RAFT protocol for replication.

**Converting 'Wildfire Detection using SmokeyNet' to Serverless** | *AWS, Python*| Link

- Converted the ML pipeline into serverless by deploying the training and inference on AWS Lambda, SageMaker, EFS and S3.
- Pipeline handled data ingestion, image processing, and detection workflow for less than 0.006 cents/invocation

**Acoustic Species Identification** | *Python, CNN*| Link

- Formulated a multi-species classifier processes audio data and identifies the bird species present in the recordings.
- Trained the strongly labelled data using VGG model to classify bird species and employed various data augmentation techniques, which resulted in a CMAP score of 0.65 on Kaggle submission for BirdCLEF 2023 competition.

**Application of Virtual Reality in BCI applications** | *Unity 3D, ESP8266*| Paper

- Crafted a prototype of a BCI controlled wheelchair for patients with partial paralysis.
- Streamlined training sessions in a virtual environment where the user controls a virtual wheelchair.

**IOT Medicine Bottle** | *NodeMCU, Java* | Paper

- Devised a system that tackles the medication non-adherence problem by tracking changes in the contents of a medicine bottle
- Engineered an android application containing 5+ screens with features for tracking quantity of medicine and customizing reminders

## Technical Skills

**Languages/Frameworks, Tools:** Python, Go, Java, C, C++, groovy, SQL, HTML, CSS, JavaScript, MySQL, gRPC, Git, Microservices, Spring, MVC framework, Jenkins, ELK stack, Node.js, Linux, Bash
**Cloud:** Terraform, Docker, Kubernetes, AWS (Sagemaker, Lambda, EC2, S3, DynamoDB, EFS, EKS, IAM), GCP, Azure