

Shivani Kalamadi

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EDUCATION

University of California, Davis

MS and Ph.D. in Computer Science; GPA: 3.88/4.00

Davis, California

Sep 2022 – Present

SDM College of Engineering and Technology

B.E. in Computer Science; GPA: 9.00/10.00

Karnataka, India

Aug 2015 – Jun 2019

Relevant coursework: Distributed Database Systems, Operating Systems, Computer Networks and Security, Machine Learning and Discovery, Analysis and Design of Algorithms, Human Computer Interaction

SKILLS

Languages: Python, C, Java, JavaScript, SQL

Systems & Infrastructure: Distributed systems, Data pipelines, Linux, Docker, AWS, Git

Data & Analytics: BigQuery, GeoPandas, Spatial joins, Tableau, Statistical modeling

APIs & Integration: REST and GraphQL APIs, cloud-based data integrations

RESEARCH/WORK EXPERIENCE

University of California, Davis

Graduate Student Researcher

Davis, CA

June 2024 – Present

- Conducting research on large-scale data systems analyzing broadband access disparities by integrating crowd-sourced network performance data with socio-demographic and geospatial datasets. **Socioeconomic analysis of Internet Access Quality** | [GitHub](#)
- Engineered distributed data processing pipelines using **Python**, **GeoPandas**, and **BigQuery** to handle millions of records efficiently across U.S. and India datasets.
- Optimized geospatial joins and indexing to support scalable spatial analytics under memory and latency constraints.
- Applied **statistical bias correction** using chi-squared testing and **CDF-based weighting** to address sampling imbalance in real-world data collection.
- Built and evaluated **ensemble learning models** (weighted Random Forests) with feature attribution via permutation and null model importance, ensuring interpretability and robustness.
- Maintained reproducible analysis workflows and codebases using **Git** and modular experiment pipelines.

Oracle

Cloud Consultant – Integration & ERP Systems

Bangalore, India

Aug 2019 – May 2022

- Developed and maintained cloud-scale integrations on **Oracle Integration Cloud (OIC)** and **Oracle Fusion Applications**, focusing on distributed ERP workflows.
- Designed and deployed bidirectional **REST-based APIs** to synchronize data across financial, project, and supply chain modules with high reliability and data consistency.
- Built automation scripts and reporting systems using **SQL** and **Business Intelligence Publisher (BIP)** for real-time operational insights.
- Collaborated cross-functionally with client and product teams to optimize **data flow orchestration**, **latency reduction**, and security compliance.
- Promoted version control and CI/CD adoption for integration pipelines, ensuring maintainability and traceability of system updates.

PROJECTS

A Study on Browser Extension Ecosystem – A comparison between Chrome and Firefox | [GitHub](#)

- Leveraging Python and the ExtAnalysis core library, this project analysed the manifest.json files for permissions and domains as static analysis. We also conducted dynamic analysis by measuring the network traffic for each extension. Hosted the pipeline on AWS ECS leveraging GraphQL, DynamoDB and CloudWatch.

Custom Operating System and Game | [GitHub](#)

- Built this OS from scratch on a hypothetical RISC-V based game console and developed a snake game to work with the developed firmware through API support such as I/O Controller APIs, Timer based APIs, Thread Management, Graphics APIs and Memory Management APIs.

Abstract Art Using Speech Emotions | [GitHub](#)

- Used VQGAN and CLIP together as a generator and perceptor on Python Speech Recognition Models: CNN, NLP, LSTM and compared their performance.