

# Swathi Meghana Kolar Rajeev

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## SUMMARY

Dynamic **Full-Stack Software Engineer** with hands-on experience developing scalable web and mobile solutions, specializing in **backend systems, RESTful APIs, cloud deployments, and AI/ML technologies.**

## EDUCATION

### UNIVERSITY OF SOUTHERN CALIFORNIA

MS in Computer Science (3.67/4.0)

Los Angeles

Jan 2024 – Dec 2025

• Coursework - **Analysis of Algorithms**, Web Technologies, Database Systems, Information Retrieval and Search Engines, **Machine**

**Learning for Data Science**, Applied Cryptography

### VIDYAVARDHAKA COLLEGE OF ENGINEERING

Mysuru, India

BE in Computer Science and Engineering (9.30/10.0)

Aug 2019 – May 2023

• Coursework - **OOPs Concepts, Software Engineering**, Operating Systems, Computer Networks and Security, Computer Organization

## WORK EXPERIENCE

### University of Southern California – Graduate Research Assistant (OnCampus) - Los Angeles, CA

May 2024 - Present

- Conducting deep learning research on Diabetic Retinopathy Detection under Dr. Anita Penkova.
- **Achieved 96% accuracy** on the OCTA dataset using **U-Net**; and trained a **ResNet50 model** for stage classification.
- Developed **modular, multi-tiered pipelines** optimizing pre-processing, model training, and evaluation across the imaging dataset.
- Collaborated on **reproducible, modular** research code with a focus on experiment tracking, **debugging**, and production-quality practices.

Tech stack: Python, PyTorch, Jupyter, Tensorflow, TensorBoard, Pandas, Numpy, OpenCV, U-Net, ResNet50

### CoachEd – Front-end Web Developer Intern - Bengaluru, India

Sept 2022 – Oct 2022

- Developed a **responsive ‘In-Vehicle Infotainment System’ dashboard** with Bluetooth, GPS, music, and radio controls.
- Contributed towards the implementation of brightness control and real-time clock display for minimal driver distraction.
- Collaborated in **Agile sprints, code reviews**, and **debugging** to deliver maintainable, production-quality software.

Tech stack: HTML5, CSS, JavaScript, Git, RWD, Media Queries

## SKILLS

- **Languages:** C, C++, Java, Python, JavaScript, TypeScript, Kotlin
- **Frontend:** HTML5, CSS3, Bootstrap, AngularJS, ReactJS, AJAX, JSON
- **Backend:** Flask, Node.js, Express.js, Spring Boot
- **Mobile Development:** Swift, SwiftUI, Java (Android), Kotlin, Xcode, Android Studio, Figma (UI/UX)
- **Cloud and DevOps:** AWS, Google Cloud Platform, Oracle Cloud Infrastructure (OCI), Docker, Kubernetes, CI/CD
- **Tools and Version Control:** Git (branching, pull requests), GitHub, Jira, Agile Methodologies
- **Machine Learning and AI:** TensorFlow, PyTorch, OpenCV, Scikit-learn, Keras, Pandas, Numpy, Seaborn/Matplotlib
- **Databases Systems:** MySQL, MongoDB, PostgreSQL
- **Operating System:** Windows, MacOS, Linux
- **Microsoft Office Suite**, Arduino Programming
- **Soft Skills:** Communication, Leadership, Team collaboration, Attention to Detail, Problem Solving

## PROJECTS

### Secure EHR Audit Logging System

- Built a full-stack web app (**Flask, Jinja2, Bootstrap**) enabling role-based access and secure session management.
- Implemented **RSA digital signatures, SHA-256 hashing, and AES-128 encryption** for tamper-evident audit logging.
- Improved system auditability and data integrity by implementing Git-based version control and encrypted log storage, **cutting audit review time by 40%.**

### Weather Forecast Application (Web & iOS Application)

- Developed a scalable weather system (**Flask, MEAN stack, and Swift**) with Tomorrow.io API integration for real-time data.
- Implemented **RESTful CRUD operations and MongoDB Atlas** for persistent data storage, with responsive UI to **improve cross-device usability by 30%**, adding hourly and weekly HighCharts forecast charts, **increasing the user session duration by ~25%.**
- Deployed on **Google Cloud Platform**, resulting in **99.9% uptime** and seamless scalability user load.

### Sequence Alignment using Memory-Efficient Dynamic Programming

- **Reduced memory usage by nearly 30%** compared to standard implementations without compromising alignment accuracy.

### MedTime – Medication Reminder App using Java and Android Studio

- Built an Android app with customizable notifications to **improve user medication adherence to daily medication routines by 25% in peer testing.**

### Criminal Record Database Management System

- Built a secure web-based criminal record management system (**PHP, MySQL, XAMPP**) with optimized CRUD operations and database indexing, **improving data retrieval efficiency by 30%.**

## RESEARCH PAPER PUBLICATIONS

### Cotton Plant Disease Detection using Deep Learning (ICSISCET 2023)

- Achieved 95% classification accuracy using a custom Convolutional Neural Network (CNN) model, improving early detection rates by 12% compared to traditional techniques.

### Detection of Diabetic Retinopathy Using Deep Learning (ICSISCET 2023)

- Developed and trained an Inception V3-based model achieving 97.66% accuracy, outperforming baseline models by 8% in diabetic retinopathy stage detection.

### Detection of Okra Disease Using Deep Learning (IJARCCE 2023)

- Designed a U-Net segmentation and ResNet18 classification pipeline, achieving 99.78% overall accuracy, reducing model training time by 15% through optimized preprocessing.

## CERTIFICATIONS, AWARDS & RECOGNITIONS

- Awarded as the **‘Department’s Best Outgoing Student’** at my Undergraduate University- VVCE.
- **AWS Certified Cloud Practitioner** – knowledge of AWS services, security, cloud architecture, billing, and deployment best practices.
- Certified as **OCI AI FOUNDATIONS ASSOCIATE** by Oracle.
- Participated in **Devfolio OnLoad 2.0 Hackathon** and presented an Android Mobile Application – **MediAssist.**
- **IBM Skillsbuild** certification on completion of course on **Data Structures.**
- Completed **MuleSoft Training** on API Management and system integration using AnyPoint Platform.