

BHUVAN RAJANAHALLY JAYAKUMAR

+1 (213) 272-3881 - [Portfolio](#) - rajanaha@usc.edu - [LinkedIn](#) - [GitHub](#) - Expected Graduation: December 2026

EDUCATION

University of Southern California
Master of Science in Computer Science

Los Angeles, California
January 2025 - December 2026

- **Relevant Coursework:** Analysis of Algorithms, Multimedia Systems Design, Database Systems, Applied NLP

Visvesvaraya Technological University
Bachelor of Engineering in Computer Science and Engineering

Karnataka, India
July 2019 - July 2023

- **Relevant Coursework:** Computer Graphics and Visualization, Operating Systems, Advanced Java, Compiler Design

EXPERIENCE

Software Engineering Intern
STYLEBOT

Los Angeles, California
April 2025 - August 2025

- Owned the end-to-end development of a Python/FastAPI microservice supporting real-time content processing for 20+ enterprise clients, contributing features from design through deployment and maintenance
- Improved service maintainability and response latency by refactoring API workflows and introducing caching layers, using async database access where appropriate to reduce blocking operations
- Worked within an existing production CI/CD pipeline (Bitbucket + Heroku), participating in code reviews and independently deploying changes to production while ensuring reliability for paying customers

AI Research Intern
INDIAN INSTITUTE OF SCIENCE

Bangalore, India
October 2023 - May 2024

- Built a medically oriented human pose detection system by creating and validating a 10,000+ image dataset with extended anatomical keypoints, collaborating with medical professionals to define clinically relevant annotations beyond standard pose models
- Developed structured Python workflows to validate image quality, annotation schemas, and dataset distribution, ensuring consistency and diversity as the dataset scaled across multiple contributors
- Designed internal annotation and debugging tools to accelerate dataset creation and analyze model failures, using targeted error analysis and iterative retraining to improve keypoint accuracy and real-time inference performance

PROJECTS

- **[AudiTex - TTS \(Chrome Extension, ONNX\)](#):** Built an in-browser TTS system running Kokoro-TTS on-device using sentence-based segmentation and a producer-consumer pipeline; implemented buffered streaming with underrun mitigation, custom text normalization, phoneme generation, and caching for low-latency playback
- **[2D Physics Engine \(C++ 17, SFML\)](#):** Implemented a real-time 2D physics engine featuring rigid body dynamics, impulse-based collision resolution with angular effects, Coulomb friction, and iterative particle-based constraints; sustained 60 FPS for over 100 interactive objects on CPU using spatial grid collision optimization
- **[Published Research – Memory Injection Detection using ML \(Python, Scikit-learn\)](#):** Co-authored a published paper classifying memory-based process injection attacks using Random Forest and KNN with engineered features from Windows memory and DLL load patterns. Built an isolated Windows-Kali VM testbed, developed custom C++ injection tooling and PowerShell data pipelines, achieving 91% detection accuracy with Random Forest
- **[Plone CMS – Recycle Bin Extension \(GSoC\)](#):** Refactored and modernized a legacy Plone Recycle Bin extension from Python 2 to Python 3 for Plone 6, adapting to updated APIs and architecture; added 50+ unit and integration tests to improve reliability, with the feature released publicly on the Plone Add-ons Store

TECHNICAL SKILLS

Programming Languages: Python, C/C++, Java, HTML/CSS, JavaScript, SQL

Frameworks: Node.js, React, Flask, Django, FastAPI, Express

Databases: PostgreSQL, MongoDB, Redis, MySQL

ML / AI: Natural Language Processing, Computer Vision, Numpy, PyTorch, TensorFlow, Large Language Models

Cloud & DevOps: AWS (S3, EC2, Lambda), GCP, Docker, Kubernetes, Terraform, Jenkins, GitHub Actions, CI/CD

Tools & Platforms: Git, Unix/Linux, REST/JSON APIs, gRPC, WebSockets, OAuth, Selenium, PyTest, unittest

ACHIEVEMENTS

- Early Career Innovator Award, University of Southern California (2025)
- Google Summer of Code, 2022

COMMUNITY INVOLVEMENT

- **Lead Facilitator, Trojans on Trails:** Organized monthly hikes for 50+ students, managing logistics and routes
- **Technical Head, DevOps Team:** Led and mentored 80+ students, delivering 15+ workshops on AI, ML, and IoT