

SHUBHAM RAJRAH

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EDUCATION

University of Southern California

Los Angeles, CA

Master of Science in Computer Science – GPA: 3.88/4

January 2023-December 2024

Relevant Coursework: Analysis of Algorithms, Database Systems, Machine Learning, Computer Graphics, Applied NLP, Information Retrieval & Web Search Engines, Game Development

SRM Institute of Science and Technology

Delhi, India

Bachelor of Technology in Computer Science and Engineering - GPA: 9.30/10

May 2016-May 2020

Relevant Coursework: Data Structures and Algorithms, Discrete Mathematics, Machine learning, Computer Networks

TECHNICAL SKILLS

- Technical Skills: Data Structures and Algorithms, Microservices, REST API Design, GitHub, OpenShift, Docker, Kubernetes, AWS, Jenkins, CI/CD, Game Dev (Unity - C#, WebGL), Graphics (OpenGL), Robot Test Framework
- Programming Languages: Python, Java, Golang, C++, JavaScript, SQL, PLSQL, Scala
- Full Stack Dev: React, Node, Flask, Spring Boot, MongoDB, PostgreSQL, MySQL, Firebase, Mobile (Swift)
- Machine Learning: Vector Search, LLMs, CNN, PyTorch, TensorFlow, Keras, scikit-learn

WORK EXPERIENCE

Easley Dunn Productions, Inc.

Los Angeles, CA

Lead Researcher and Advisor Engineer

Jan 2025-Present

- Building an AI-assisted VR surgery system integrating real-time procedural guidance and interactive replay using RAG, LangChain and graph-based causal retrieval for orthopedic procedures.

Airy

Los Angeles, CA

Technical Lead (Web Platform)

June 2024-August 2024

- Led the system design and development of Airy's AI journaling web platform and AI System, utilizing React, IndexedDB, and OAuth2.0, enabling real-time conversational sessions with an AI Agent
- Implemented RAG and vector search using HSNW for fetching user memories (journal entries) related to a particular context
- Directed a team of developers, managing sprint planning and task delegation, while translating complex functional and non-functional requirements into actionable development tasks to deliver a seamless user experience

Optum (UnitedHealth Group)

Chennai, India

Software Engineer, Core Development Team

January 2020-December 2022

- Developed and maintained an online portal to enroll healthcare providers and state agents in the US as a full stack developer
- Collaborated in a team of 4 to improve code quality by analyzing and fixing high priority defects
- Maintained and optimized a data pipeline to Extract, Transform, Validate, and Load large-scale member health data for downstream consumption leveraging PLSQL, Java, python, DevOps, reducing runtime by 81%
- Developed and deployed a test data generation tool that cut manual preparation time by 50% and authored comprehensive end-to-end test suites, resulting in a 25% faster time-to-market for software delivery

Pro Ace International

Remote, US

Full Stack Developer

January 2019-January 2020

- Conceptualized and established an online platform called Underdogdols for budding Singers & Performers along with functionality to upload videos with voting features by registered users. Devised an algorithm to match performers with music label companies, improving matching efficiency by 90%

ACADEMIC PROJECTS

Video Description and Semantic Retrieval via keyframe Stitching

- Designed a multimodal AI system for video description generation and semantic search by fine-tuning a T5 model on curated visual-text data, extracting insights solely from visual inputs without metadata dependency

covid19-social.com | Python, Flask, HTML, CSS, JS

- Designed and deployed a website during Covid to help users find Covid-19 resources such as oxygen cylinders, beds etc.
- Devised an algorithm to match social media feeds with user requirements using various APIs

Vaccination Slot Booking for Covid-19 | Python, Flask, MySQL

- Created a service for users to register for the Covid-19 vaccination slot booking notification by consuming an API endpoint periodically to check for free slots, serving each user in a non-discriminatory fashion

Recommending Reusing DIY Ideas using Waste Recognition

- Collaborated in a team of 2 to build a real-time waste object recognition system using Convolutional Neural Networks with transfer learning model ResNet-50 with a validation accuracy of 87.48% (Research Paper in IEEE Access - [link](#))

LEADERSHIP AND INVOLVEMENT

- Scholar at USC Asian Pacific Alumni Association (APAA)
- Awarded the Sapphire Award (professional ethics) and Diamond Award (technical innovation and leadership) at Optum
- Spearheaded a team of 5 called HealthCera as Team Leader at Optum Global Hackathon