KRUTIKA RAJESH BHALLA | Los Angeles, CA

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EDUCATION

Master of Science, Computer Science Sep 2022 - Dec 2023
University of California, Riverside ***GPA: 3.83/4.0***
Relevant Courses: Advanced Operating System, Design and Analysis of Algorithms, Artificial Intelligence, Big Data Management, Information Retrieval, Computer Security, Spatial Computing

Bachelor of Technology, Information Technology Jul 2018 - May 2022
KJ Somaiya Institute of Engineering & Information Technology, Mumbai, India ***GPA: 9.16/10.0***
Relevant Courses: Agile & Scrum Software Development, Software Development Life Cycle, Object Oriented Programming, Network Security, Data Structures and Algorithms, Machine Learning and Pattern Recognition, Natural Language Processing

PROFESSIONAL EXPERIENCE

TTK Healthcare Ltd Feb 2022 - Aug 2022
Software Engineer Intern *Mumbai, India*

- Led the design and execution of a Sales Prediction Model utilizing **Random Forest Regression** & **LSTM**, analyzing 5 years of sales data from a **7GB** dataset. Acquired a remarkable **94%** prediction accuracy, playing a pivotal role in TTK's strategic decision-making processes
- Implemented **MySQL** and **Python Scripting** for cleaning, preprocessing dataset, and eliminating redundant columns. This improved data retrieval speeds by **27%**, also minimized data inconsistencies and bolstered data integrity
- Crafted an **agile** dashboard using **Flask**, **React JS** and incorporated **Plotly** visualizations, reducing analysis time by **38%**. This refinement amplified TTK teams' data insights and bolstered inter-departmental synergy

Kennovation Software Services Pvt Ltd Aug 2021 - Jan 2022
Software Engineer Intern *Mumbai, India*

- Collaborated with cross-functional teams to expand software's capabilities with **Python** and **Pillow** library, enabling it to read **6+** previously inaccessible medical report types, including MRI, fMRI, PET, and EEG scans
- Developed a **Python Scripting** Model to convert Medical Reports, Clinical History, and Physiological data into **DICOM** files and processed over **10,000+** reports
- Streamlined **MySQL** commands through **Flask** & **Pandas**, then integrated **PyTorch's tensor** processing for a **32%** boost in query speed and data retrieval efficiency, optimizing overall system performance

Rudraksha Welfare Foundation Jan 2021 - Aug 2021
Full Stack Developer Intern *Mumbai, India*

- Architected and deployed **CRM** using **Angular** & **Node.js**, delivering real-time performance visuals and facilitating **JSON** based data interchange through scalable **RESTful** services, optimizing data flow and enhancing overall system responsiveness
- Collaborated with cross-functional teams and introduce a **project management module** based on **Gantt Chart**. This enhanced tracking efficiency by **30%** and provided stakeholders with critical insights, resulting in a **15%** increase in donor contributions due to improved transparency and trust
- Integrated **Docker** for containerization fostering a **20%** reduction in deployment timeframes, whilst upholding application environment consistency

PROJECTS

COVID Crowd Counting System

- Leveraged **YOLOv3** (chosen for its real-time object detection capabilities) and **GMM** algorithms to accurately count individuals from multiple CCTV feeds, ensuring **no double-counting** from overlapping camera views. The integration achieved a remarkable **92%** accuracy rate in detecting individuals within congested zones
- Designed a **real-time Dot Map** visualization tool highlighting areas of congestion, catalyzing swift identification of potential social-distance breaches. Led deployment of system across multiple high-traffic zones (grocery/medical stores), resulting in a **44% reduction** in congestion incidents, crucial for maintaining COVID-19 safety protocols

Patient Appointment Portal

- Engineered an online appointment platform using **Node.js**, enabling seamless scheduling of virtual and in-person consultations. Ensured smooth user-checkout by integrating **PayPal's** payment gateway
- Utilized **AWS EC2** for dynamic scaling and **RDS** for managing a database of over **10,000** patient records with sub-second query response times. Containerized the application with **Docker** for streamlined deployment

Baked In Bombay

- Spearheaded end-to-end development of a business-focused web platform, employing **React JS** for an interactive interface (leading to **25%** hike in user-engagement) and **Node.js** to bolster server efficiency (reducing load times by **15%**)
- Implemented **MongoDB** to efficiently manage and process **100+** orders daily, and integrated **PayPal API**, leading to a **20%** surge in successful online transactions

Deepfake Content Detection

- Championed an **LSTM-based** model to evaluate **image** & **video** frames, pinpointing inconsistencies and achieving a standout **93%** accuracy rate in deepfake identification. Ensured **7% fewer** false positives compared to conventional models
- Managed and revamped Kaggle's **500GiB DFDC** dataset, segmenting videos into **5-second** units, leading to a **20% increase** in processing speed and making vast data manageable for **LSTM** analysis
- Enhanced efficiency and scalability by strategically integrating **Amazon EC2**, boosting model computation speeds. Additionally, adopted **Amazon S3**, for superior storage, preparing system for significant future dataset expansions

WhatsApp Chat Analyzer

- Managed and dissected extensive chat datasets, filtering out links and emojis while retaining vital Hinglish (Hindi + English) words; parsed and analyzed over **1 million** messages, achieving a **97%** accuracy in data categorization and visualization
- Built a **Streamlit** dashboard, integrating advanced visualizations like activity timelines, word clouds resulting in **40% reduction** in data interpretation time and a **50% surge** in user interaction due to clear visual feedback
- Utilized **Pandas** for data manipulation, and efficiently extracted key metrics like top users and message frequencies, leading in a **32%** quicker insight retrieval for end-users.

Multi-Speaker Recognition and User-Specific Answering System | Publication

- Designed and perfected a voice authentication framework using **MFCC**-based **Voice Activity Detection** (VAD), reliably identifying users by extracting pivotal audio features including **tone**, and **pitch**, even in noise-pervaded environments
- Pioneered the integration of **HuggingFace Transformers** & **SpaCy-3** for translating audio to text with an outstanding **95%** accuracy, facilitating domain-specific online queries for optimized user-centric result

TECHNICAL SKILLS

Languages: Python, JavaScript, C++, Java, C#, MySQL, PostgreSQL, MongoDB, HTML5/CSS, JQuery, AJAX, JSON
Frameworks: Flask, Django, Node JS, Angular JS, React JS, .NET, Docker, Kubernetes, Hadoop, Jenkins, Kafka, Snowflake
Tools & Libraries: GIT, UNIX, Plotly, JIRA, AWS, Tableau, Tensorflow, Sci-Kit Learn, NLTK, PyTorch, Numpy, Pandas

AWARDS & CERTIFICATIONS

- **2nd Place**, UCR Programming Challenge (competed against **200+** scholars including PhDs and Master's candidates)
- **1st Place**, PICT's Impetus & Concepts - Recognized for "Multi Speaker Recognition and User-Specific Answering System" in the Speech/Audio Processing domain
- **2nd Place**, Mastek Deep Blue Competition - Recognized for "COVID Crowd Counting System"
- **AWS Certification**: Going Cloud Native
- **AWS Certification**: Building Serverless Applications