

RUTWIK DHIRUBHAI PATEL

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EDUCATION

University of Southern California

Masters of Computer Science

August 2023 - May 2025*

GPA: 3.83/4

Analysis of Algorithm, Database Systems, Web Technology, Natural language processing.

Dwarkadas J. Sanghvi College of Engineering, Mumbai University

Bachelor of Technology in Information Technology

August 2019 - May 2023

GPA: 3.8/4

Operating Systems, Machine Learning, Software Engineering, Computer Networks.

TECHNICAL SKILLS

Programming Languages Python, JavaScript, Swift, HTML, CSS, Typescript, R, SQL.

Tools and Frameworks Angular, Node, Express, Django, Git, iOS, Linux, GCP, AWS.

Machine Learning Scikit-learn, Pandas, NumPy, Keras, TensorFlow, PyTorch, Statistics, Seaborn.

EXPERIENCE

Research Assistant

February 2024 - Present

USC Marshall School of Business, Los Angeles, USA

- Led qualitative fact-finding initiatives, gathering and analyzing data on electricity generation, greenhouse gas emissions, and fiscal budgets from government sources and credible research institutions to support research on the energy transition of Guyana.
- Created a JavaScript script for web scraping to obtain ISIN numbers based on organization names, and performed data preprocessing and cleaning to ensure accurate and reliable data for renewable energy project documentation.

Software Development Engineer (SDE) Intern

May 2022 - July 2022

Smart Consultant, Mumbai, India

- Collaborated with a 4-member team to design and develop a full-stack web application, leveraging Python, Angular and MongoDB ensuring robust backend functionality and seamless frontend integration.
- Developed key features for a Library Management application from the ground up, focusing on advanced database management using SQL, including user registration, book inventory management, lending and return processes.
- Implemented dynamic search functionality within the application and ensured fast, accurate retrieval of information, enhancing the overall user experience.

ACADEMIC PROJECTS

Stock Trading Application ([Website](#) and [iOS App](#))

January 2024 - April 2024

- Created a RESTful webpage using Angular and Express.js, enabling users to research stock information and make informed trading decisions, leveraging the Finnhub Stock API for real-time data.
- Implemented a responsive and intuitive user interface for the webpage using Bootstrap, ng-bootstrap, and Angular Material libraries. Successfully deployed the application on Google Cloud Platform (GCP).
- Developed an iOS application using Swift to complement the website.

Leveraging BERT and RoBERTa for Fake News Detection

January 2024 - April 2024

- Utilized deep learning and machine learning models, including CNN-LSTM, BERT, and RoBERTa, to effectively detect fake news on social media, with RoBERTa achieving the highest accuracy of over 93%.
- Conducted comprehensive evaluations using WELFake and Kaggle datasets with over 115,000 articles, revealing RoBERTa's superior performance with an accuracy of over 93%, precision of 94%, recall of 94%, and F1-score of 94%.

- Led a team of 3, built a cataract detection project in Python with a CNN model for cataract prediction with 97% accuracy and XAI techniques to determine why CNN model is producing certain results interns increasing the performance of doctors.
- Generated a model incorporating GradCAM for detecting and localising cataracts in eye, presented project findings and progress to stakeholders, bridging gap between technical details and non-technical stakeholders.
- Utilized Python, StreamLit, MongoDB, and various XAI libraries to drive project success.

EXTRA-CURRICULAR ACTIVITIES

- [Federated learning to preserve the privacy of user data](#): Authored, presented, and published a paper in IEEE at the 9th Somaiya International Conference on Technology and Information Management (SICTIM) 2023, focusing on predicting the diagnosis of urinary system diseases while preserving user data privacy through federated learning techniques.
- Took an active role as a backend developer and managed a team during intense 24-hour hackathon, Codeshastra, hosted by the DJ Computer Society of India in 2022.
- Contributed as a Teaching Assistant for the Data Structures Course, conducting lectures on topics including Stack, Queue, Greedy Algorithm, and Amortized Cost, and resolved queries through doubt solving sessions