

RUTWIK DHIRUBHAI PATEL

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EDUCATION

University of Southern California

Masters of Computer Science

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

August 2023 - May 2025*

GPA: 3.83/4

Dwarkadas J. Sanghvi College of Engineering, Mumbai University

Bachelor of Technology in Information Technology

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

August 2019 - May 2023

GPA: 3.8/4

TECHNICAL SKILLS

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

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

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

EXPERIENCE

Research Assistant

USC Marshall School of Business, Los Angeles, USA

February 2024 - Present

- 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 energy transition of Guyana.
- Wrote JavaScript script for web scraping to obtain ISIN numbers based on organization names, and performed data preprocessing and cleaning for accurate and reliable data for renewable energy project documentation.

Frontend Web Developer Intern

World Salon, New York, USA

July 2024 - Present

- Developed and maintained user interface of the World Salon platform in React; built user profile features including Profile, Events, and Posts pages with commenting, liking, and sharing functionalities.
- Collaborated with backend developers to integrate RESTful APIs, ensured technical feasibility of UI/UX designs, and evaluated responsive design principles for seamless user experience across devices.

Software Development Engineer (SDE) Intern

Smart Consultant, Mumbai, India

May 2022 - July 2022

- 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.
- Designed key features for a Library Management application from ground up, focusing on advanced database management using SQL, including user registration, book inventory management, lending and return processes.
- Added dynamic search functionality within the application and achieved fast, accurate retrieval of information, enhancing overall user experience.

ACADEMIC PROJECTS

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

January 2024 - April 2024

- Created a RESTful webpage with Angular and Express.js, enabling users to research stock information and make informed trading decisions, leveraging the Finnhub Stock API for real-time data.
- Crafted a responsive and intuitive user interface for webpage with Bootstrap, ng-bootstrap, Angular Material libraries and deploying application on Google Cloud Platform (GCP).

- Constructed an iOS application with Swift to complement 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 detect fake news on social media, with RoBERTa achieving 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%.

Cataract detection using Explainable AI (XAI) [Github](#)

October 2022 - April 2023

- 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 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 9th Somaiya International Conference on Technology and Information Management (SICTIM) 2023, focusing on predicting 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.