

# RUTWIK DHIRUBHAI PATEL

Los Angeles, CA - 90007 | rutwikpatel1313@gmail.com | +1(213) 913 8803 | LinkedIn | GitHub

## EDUCATION

**University of Southern California (Viterbi School of Engineering)** Aug 2023 - May 2025\*

Masters of Science in Computer Science (spec. in Data Science)

Course: Analysis of Algorithm, Database Systems

**Dwarkadas J. Sanghvi College of Engineering, Mumbai University, India** Aug 2019 - Jun 2023

Bachelor of Technology Information Technology with *Distinction*

CGPA 9.29/10

Relevant Courses: Data Structures and Algorithms, Advanced Machine Learning, Soft-computing, Computer Networks and Security, Web Design, Database Management Systems, Image Processing and Computer Vision

## EXPERIENCE

**Backend Intern, Smart Consultant, Mumbai, India** Jul 2020 – Oct 2020

- Implemented Java project and on its different management systems and different frameworks such as library management and fee management of specific courses.
- Performed with Apache NetBeans and MYSQL databases, connecting databases with applications, and accessing, storing, and processing data.

## ACADEMIC PROJECTS

### Cataract detection using Explainable AI (XAI)

- 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.

### Second-hand Book Selling Using the CNN model

- Managed a team of 4, developed a MERN website for college students to buy and sell second-hand books to other students by creating database of 100+ second-hand books with 4 pictures per book.
- Generated a CNN model for predicting book conditions, incorporated a collaborative filtering-based book recommendation feature, and integrated Keras-OCR to automatically extract book details improving accessibility and usability for users.
- Employed tech stack including React, Python, Express, MongoDB, Keras-OCR to implement innovative solution.

### Blur image classification

- Designed an image classification project classifying blurred and clear images utilizing Variance of Laplacian technique, informed by a comprehensive review of various methods.
- Created a streamlined function for sorting images into distinct folders based on blur or non-blur classification with 85% of accuracy optimizing storage by deleting all blurred image at once.

### Federated learning to preserve the privacy of user data

- Authored, presented, and published a paper in IEEE in 9th Somaiya International Conference on Technology and Information Management (SICTIM) 2023 in March-April 2023, ISBN: 979-8-3503-3329-9.
- Devised a project to predicts diagnosis of two urinary system diseases in a federated way maintaining user privacy.
- Constructed a function dividing dataset into three equal parts, trains each part using a logistic regression model, and then transmits these models to a trusted aggregator for computing average.

## TECHNICAL SKILLS

- Programming Languages: C, Java, Python | Database: NoSQL(MongoDB), MySQL.
- Web Technologies: HTML, CSS, JavaScript, PHP, StreamLit | Framework: React, Bootstrap, Django, ExpressJS.
- Other: Git, Data Structures and Algorithms, Machine Learning, NumPy, Pandas, Matplotlib, OpenCV, sci-kit-learn, PyTorch, TensorFlow, Seaborn, Jupyter, Postman, Office 365.

## EXTRACURRICULAR ACTIVITIES

- Took an active role as a backend developer within a team during intense 24-hour hackathon, Codeshastra, hosted by the DJ Computer Society of India in 2022.
- Took lead in expanding data science expertise by completing professional course of IBM Data Science (2021–2022), University of Michigan's Python Data Structures course (2021).
- Completed a course from Macquarie University “Excel Skills for Business: Essentials” with 96% Grade and Google’s “Doing more with Google Sheets” on Coursera Platform.