

CHIRAG JAGAD

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EDUCATION

Dwarkadas J. Sanghvi College of Engineering (DJSCE), University of Mumbai, India

Expected: June 2023

Secured a Bachelor of Technology in Information Technology.

(CGPA: 9.6/10)

Relevant Coursework: Machine Learning, Artificial Intelligence, Computer Vision, Mathematics, Data Structures and Algorithms, Operating Systems, Database Management, Computer Networks and Security, Distributed Computing

PROFESSIONAL AND RESEARCH EXPERIENCE

Indian Institute of Technology, Delhi, India (Neuroimaging Lab) | Research Intern

March 2022 – Present

Guide: Prof. Tapan Gandhi, Department of Electrical and Biomedical Engineering

- Working on quantifying the distribution of magnetic susceptibility within brain magnetic resonance imaging (MRI) images using deep neural networks and developed a U-Net model using TensorFlow.
- Generated synthetic data using 3D geometrical shapes for training, tested the model on a real brain image dataset, and tried to improve the model using the structural similarity index loss function.
- Exploring the non-invasive techniques for predicting the hepatic venous pressure gradient (HVPG) in the liver and writing a review paper on the same.

University of California, San Diego, United States of America | Research Intern

August 2021 – Present

Guide: Prof. Pengtao Xie, Department of Electrical and Computer Engineering

- Tasked on a domain adaptation problem by decomposing features into domain-specific representations and class-specific representations using differentiable architecture search approaches.
- Studied and derived an optimization algorithm for the same and implemented the algorithm using Pytorch.
- Employed ResNet architectures, various supervised and semi-supervised settings, and achieved an accuracy of 87.5% using few-shot learning.

DotSyndicate, Mumbai, India | Full Stack Web Developer Intern

March 2021 – January 2022

- Boosted the spike in business by developing an end-to-end admin dashboard using JavaScript and Node.js for an African e-commerce company by conducting product research, collaborating on the ideation of developing the software application, and designing an interactive user interface.
- Built an efficient data management system and triggers to handle the amount and velocity of the data.
- Provided real-time data analytics with intuitive visualizations for daily business analysis.

PROJECTS AND PUBLICATIONS

Intelligent Video Surveillance System | Undergraduate Research Assistant project

Guide: Prof. Neha Katre, Department of Information Technology

- Devised a smart alarming system using the YOLO (you only look once) model that can detect fire and various types of weapons; presently working on detection of various real-time anomalies such as fights, accidents, etc.
- Developed key-frame extraction algorithms using conventional optical flow and deep learning methods.
- Improvising the system anomalies by enhancing feature extraction and optimizing the entire process.
- Presented “A Study on Video Analytics and Their Performance Analysis for Various Object Detection Algorithms”, at IEEE IAS Global Conference on Emerging Technologies (GlobConET) 2022 and available on IEEE Xplore.

Smart Healthcare System | Research and Development Project

- Programmed an end-to-end website using Django to make technology more useful in solving problematic healthcare challenges by diagnosing various symptoms, analyzing data, and then predicting diseases.
- Created a model using OpenCV and Python to generate heart rate using head motions in the video and predict the probability of Coronary Heart Disease; built other models to predict PCOD, Myopia, and Color Blindness.
- Implemented a doctor recommendation module using Practo API to help users connect to the recommended doctors in the city.

- Authored a paper on “Smart Healthcare System to Predict Aliments Based on Preliminary Symptoms”, accepted to be published in the Springer Lecture Notes in Networks and Systems series and presented at the International Conference on Innovations in Computer Science and Engineering (ICICSE-2022).

Federated Machine Learning-based Bank-Customer Churn Analysis | *Research and Development Project*

- Modeled a robust multilayer perceptron model using the federated machine learning approach providing an accuracy of 96% for bank churn prediction and solving the problem of the imbalanced dataset used by upsampling it.
- Created servers for training and testing the model using Python and TensorFlow, and demonstrated the advantages of federated machine learning concerning the accuracy, transmission time, and computation cost.
- Authored a book chapter on the same which will be published in the book “Practical Data Mining Techniques and Applications” by CRC Press, Taylor and Francis Group.

Car Damage Detection System | *Academic Project*

- Developed an intelligent system using TensorFlow to predict the repairing cost of the damage by locating and recognizing the severity of the damage.
- Employed transfer learning and fine-tuned the VGG16 model to achieve an accuracy of 86%.

FindIt – A solution for lost and found items | *Academic Project*

- Constructed the backend using Node.js for an application that allows civilians to upload the data of lost items and search for their lost items.
- Formed an admin portal using React and Node.js for organizations, that have lost and found departments, where admins can perform verification of the lost items and give them to the owners.
- Included key features that include a real-time chat box, rightful owner verification, and data analytics

TECHNICAL SKILLS

- Languages: Python, JavaScript, Java, SQL, C/C++, R
- Machine Learning: Pandas, Numpy, Scikit-learn, Keras, TensorFlow, PyTorch, OpenCV, MONAI
- Database: SQLite, MySQL, PostgreSQL, MongoDB
- Frameworks: React, Express, Django, Flask, Bootstrap
- Miscellaneous: Node.js, HTML, CSS, Git, Firebase, Azure, LaTeX, Jupyter, Kubernetes, Heroku

EXTRACURRICULAR ACTIVITIES AND ACHIEVEMENTS

- Promoted to Gold Ambassador and currently leading a global community of Microsoft Learn Student Ambassadors; hosted an international-level workshop on Git, GitHub, and web development with hands-on sessions to help students to kickstart their journeys. (2021-Present)
- Leading a team of 20 members as the Research and Development Lead of DJ InIT.AI (The AI Club of DJSCE) in an effort to encourage research and help humankind with innovations; mentoring a batch of 120+ students and teaching them concepts related to AI. (2022-Present)
- Spearheaded a team of 62 members as the Chairperson of DJCSI (Computer Society of India, DJSCE) with an aim to ignite the students’ passion for technology; organized various workshops and events; hosted a 24-hour national-level hybrid hackathon with a prize pool of INR 40 lakhs which received 800+ applications. (2021-2022)
- Lectured on Python, object detection, and federated machine learning as Teaching Assistant at DJSCE. (2022)
- Established a mentor-mentee club at DJSCE to help students in their academics and professional careers. (2022)
- Worked as the Editor at A Cluster of Ballads and the Compiler of Intoxication published by Writer’s Pocket. (2021)
- Volunteered as a Marketing Associate for Trinity, the Sports-Cultural-Technical fest of DJSCE, and helped in raising the funds and bringing various partners on board. (2020)
- Assisted in organizing the Annual Alumni Meet as Head of Marketing under the Alumni Coordination Cell of DJSCE. (2020)