

SAMAY PATEL

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EDUCATION

Indian Institute of Technology

B.Tech Manufacturing Science and Engineering – 8.02 CGPA

Kharagpur, West Bengal

July 2019 – Present

Higher Secondary Education

M.P. Board of Secondary Education – 79.8%

Desire Academy, Madhya Pradesh

July 2017 – May 2019

Secondary Education

Central Board of Secondary Education – 8.0 CGPA

La Sagesse, Madhya Pradesh

July 2015 – May 2017

EXPERIENCE

Computer Vision Intern

Dewinter Optical Inc. – (Certif.)

May 2021 - July 2021

New Delhi

- Worked on Grain Size Analysis of metals with **Sobel Operators** and improved upon it by using **Canny Edge Detection**
- Worked on color-based image segmentation of microscopic images by implementing **K-means clustering algorithm**
- Worked on automatic calibration, by detecting scale marks to establish a relation between pixels and measuring unit
- Built a point tracking algorithm using **Template Matching** for a video stream to obtain the distance between two objects

KEY PROJECTS

Medical Assistant

Web Application – (Link)

Feb. 2021

(Self)

- Developed a web application for hospitals to interact with their patients without their physical presence and consult them
- Trained an **SVM model** for heart disease detection and used this model in the application to analyze the patient details
- Used **HTML**, **CSS**, and **JavaScript** for developing the frontend and built the backend of the application using **Flask**
- Used **MySQL** database which will be used for storing patient detail, records, and appointment for the hospital to review

Neural Style Transfer

Image Processing – (Link)

Dec. 2020

(Self)

- Built a module that blends two images taken as input by changing the pixel values of output image using gradient descent
- Used the **network architecture VGG19**, a pre-trained image classification network, to get feature encodings of the images
- Used these feature encodings in two cost functions and minimized them with gradient descent to develop the output image

Sentiment Analysis

Natural Language Processing – (Link)

Oct. 2020

(Self)

- Deployed a model using **Tensorflow** that analyses the given sentence and predict the sentiment of the given sentence
- In this model, I have used **Recurrent Neural Network** with **LSTM** as its recurrent unit for better accuracy
- Used **Adam Optimizer** with mini-Batch Gradient descent to increase the training speed while training the model

Traffic Surveillance

Computer Vision – (Link)

Sep. 2020

(Self)

- Built a python program using **OpenCV** for vehicle detection by **Frame Differencing**, that can be used for traffic surveillance
- Improvised the program by using a **Convolutional Neural Network, YoloV3** which is 3rd generation of Yolo models
- Using YoloV3 increased the object detection accuracy as it uses 3 different grid sizes for detecting objects of different sizes

SKILLS AND EXPERTISE

Programming Languages : Python | C | C++ | Matlab | JavaScript | HTML | CSS

Frameworks and Libraries : Tensorflow | OpenCV | Flask | pandas | NumPy | Matplotlib

Technical Skills : Machine Learning – (Certif.) | Deep Learning – (Certif.) | Data Structure and Algorithm | Web Development

Relevant Coursework : Probability and Statistics | Linear Algebra | Calculus | Transform Calculus

EXTRA-CURRICULAR ACTIVITIES

Contributed in **Inter-hall Illumination competition** as a part of Lal Bahadur Shastri hall of residence

Actively participated in **NSO Health and Fitness program** at IIT Kharagpur as a recreational activity

ACHIEVEMENTS

Secured an **All India Rank 4590** among 2 lakh students in **JEE Advanced 2019**

Ranked in **top 0.38 percentile** student among 11 lakh students in **JEE Main 2019**