SHASHANK KIRTANIA

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EDUCATION

Course/Board	Institute	Specialization	Year of passing
Bachelor in Engineering	Thapar Institute of Engineering and Technology, Patiala	Computer Engineering	2023
12th	Delhi Public School, Faridabad	PCM	2019

EXPERIENCE

Google Summer of Code
Contributor at PyMC | May 2022 - Sep 2022

- Created a new model builder class that extends current PyMC model functionality.
- Documented and tested model builder class and merged it to pymc-examples, reported my progress to Thomas Wiecki (CEO & founder of PyMC labs).
- Working on deployment of these models on various deployment tools like Docker, Sagemaker, Dask.

Indian Institute of Technology, Delhi
Research Internship | Jun 2022 - Aug 2022

- Working with Dr. V V K Srinivas on a project related to Time Series Analysis.
- Used ARIMA, SARIMA, LSTM, RNN to forecast prices for Indian Energy Exchange day ahead markets.

Indian Institute of Information and Technology, Allahabad
Research Internship | Jun 2021 - Mar 2022

- Worked with Dr. Javed on compressed domain of JPEG2000 image, used TensorFLow Keras to make Convulsion Neural Network for classification of images using their Discreet Wavelet Transform Coefficients retrieved during compression of images using High throughput JPEG200. ***(Work under review)***
- Segmented semi compressed images using their DWT Coefficients, worked on data augmentation using GANs.

Bennet University, Noida
Research Intern | Aug 2021-Dec 2021

- Worked with Dr. Suneet Gupta and Dr Ekta Walia (University of Saskatchewan) on data augmentation of MIAS dataset using GANs

Skills

Programming languages:	Python, C++, MATLAB, R*, Solidity*
Libraries / Frameworks:	TensorFlow, openCV, NLTK, PyTorch, PyMC, MLflow*
Tools / Platforms:	Docker, Git, LaTeX, GPU computing*

(* : Elementary proficiency)

Projects

NoTouch: Contact less fingerprint biometric verification
Image processing, Deep learning, Computer vision | Ongoing

- Studied theory of fingerprint biometric and verification.
- Segmented fingerprint from fingerprint photos using skin colour and saliency based mask.
- Designed a U-net for enhancement of fingerprint photos.
- Used Deep Learning model for extraction of minutiae points.

Adversarial Attacks on CNN classification model
Adversarial, Computer Vision | August 2021

- Developed a Convolutional Neural Network for classification of images and attacked the same network with a gradient based perturbation which uses gradient tape to disrupt the predictions of neural network.
- The attack successfully reduced the accuracy of CNN from 98.33% to 4.74% after the attack. [repo]

Captcha Reader
Optical character recognition, Computer Vision | July 2021

- Improved and trained a model to read text captcha using Convolutional Neural Network and Recurrent Neural Network to crack captchas using OCR, This model specialises in reading images with strikes out characters or distorted characters. [repo]

Federated Learning model on MNIST dataset
Decentralised Learning | August 2021

- Developed a decentralised Artificial neural network model by dividing dataset among 10 clients (locally) and used their parameters to train a global model with 96+ % accuracy in 30 epochs. [repo]

DeepFake Classifier
DeepFake detection, Computer Vision | May 2021

- Implemented a DeepFake classifier on images using MesoNet, created a Convolutional Neural network to compute the binary classification model. Implemented the same model for videos on a Kaggle contest. [repo]

Other Interests and Achievements

- Bronze medal in Kaggle contest hosted by American Express on Time series forecasting (top 7%)
- 3 star programmer on CodeChef, 5 star in DSA, Python, C++ at HackerRank
- Keen interest in Blockchain technology and Cyber Security.
- Worked on multiple IOT projects using Arduino and Raspberry pi 4B

Coursework

- Artificial Intelligence
- Machine Learning
- Probability and Statistics
- Optimisation Techniques
- Compiler Design
- Design and Analysis of Algorithm
- Data Structure
- Operating Systems
- Computer Networks
- Computer Organisation Architecture
- Introduction to Cyber Security
- Cyber Forensics
- Secure Coding
- Blockchain
- Embedded systems
- Network Programming

Relevant links

Github:	github.com/5hv5hvnk
Kaggle:	kaggle.com/shashankkirtania
LinkedIn:	linkedin.com/in/shashank-kirtania
CodeChef:	codechef.com/users/shashank1608