AMAN JAISWAL

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EDUCATION

B.Tech, Computer Science and Engineering Indian Institute of Technology, Dharwad	June 2020	8.11/10.00
HSC/Intermediate (RBSE) Disha Delphi Global Sr. Sec. School, Kota, Rajasthan	March 2016	84.2%
SSC/High-School (CBSE) Nav Jeevan Mission School, Kasia, Uttar Pradesh	March 2014	10.00/10.00

PUBLICATIONS

En-VStegNET: Video Steganography using spatio-temporal feature enhancement with 3D-CNN and Hourglass

IEEE International Joint Conference on Neural Networks - 2020, Glasgow (UK)

SENIOR THESIS

AutoClean: Towards automated data cleaning — August 2019 - April 2020

Mr. Vitobha M.: IBM Research Labs, Prof. Kedar K.: IIT Dharwad — *Machine Learning (Python)*

⋄ Collaborated with IBM Research Labs, Bangalore, India under IBM's Global Remote Mentorship program.

⋄ Developed a tool for fully automated holistic data cleaning to increase the quality of data, thereby increasing the performance of the underlying machine learning model.

ACADEMIC RESEARCH PROJECTS

Unconstrained Ear Matching — April 2020 - Present

Prof. Aditya Nigam — IIT Mandi — *Deep Learning (Tensorflow, Keras)*

⋄ Designing a novel capsule-network based neural network architecture to perform ear-matching on the challenging UERC (Unconstrained Ear Recognition Challenge) dataset, improving upon the current state-of-the-art method for the same.

Fully Automatic Video Colorization — April 2020 - Present

Prof. Aditya Nigam — IIT Mandi — *Deep Learning (Tensorflow, PyTorch, Keras)*

⋄ Implemented and extended Pix2Pix, Colorful Image Colorization and other image colorization research papers to videos by using 3D CNN instead of 2D CNN and introducing a temporal loss component.

⋄ Designing a novel instance-aware colorization neural network with spatial and temporal fusion of object instances with the background and consecutive frames, respectively.

Video Steganography — November 2019 - February 2020

Prof. Aditya Nigam — IIT Mandi — *Deep Learning (Tensorflow)*

⋄ Re-designed the architecture of VStegNET, the current state-of-the-art method for full-video steganography, to further improve the performance of steganography.

⋄ Achieved a 12% performance improvement over VStegNET by incorporating gradual learning and feature enhancement to the architecture of VStegNET.

Automatic Generation of X-Ray Report — May 2019 - July 2019

Prof. Aditya Nigam — IIT Mandi — *Deep Learning (PyTorch)*

⋄ Designed a novel deep learning language model with attention to generate X-Ray report from the visual features extracted by pre-trained ResNET and DenseNET models (trained on Chest X-Ray 14 Dataset) for the given X-Ray image.

⋄ The designed model achieved comparable performance to the then available state-of-the-art methods.

ENGINEERING PROJECTS

Distributed Backup Server
Prof. Kedar K. - IIT Dharwad (Course Project)

August 2019 - November 2019
Distributed Systems (Java)

- ⋄ Developed a basic distributed backup service for a local area network to use the free disk space of the computers in a LAN for backing up files in other computers in the same LAN.
- ⋄ Worked with Java RMI API to set up a communication link between the computers and provided services to backup, delete and restore a file as well as to reclaim local space.

Smart Attendance System
DevHack Hackathon - IIT Dharwad

January 2019
Deep Learning (Tensorflow)

- ⋄ Designed a pipeline of 3 independent components to detect faces of the students present in the classroom and mark their attendance.
- ⋄ Used OpenCV's LBP classifier for detecting faces present in the picture. Segmented the detected faces and then deblurred them using Scale-RNN. Fine-tuned a Siamese Network trained on FaceNet for one-shot face recognition.

IIT-Dh : Buy and Sell
Prof. N. L. Sarda - IIT Bombay (Course Project)

August 2018 - November 2018
DBMS Project (BootStrap, PostgreSQL)

- ⋄ Designed a web portal for students to buy and sell used goods (hosted on college's intranet) with features like posting and deleting an add, rating a seller/buyer, chat with the seller/buyer.

Smartphone Suggest
Prof. S. R. M. Prassana - IIT Guwahati (Course Project)

August 2017 - November 2017
Data Analytics (Python)

- ⋄ Developed a software to suggest smartphones provided budget and functionality preference of the user, targeted towards new smartphone users with prediction based on reviews from the current smartphone users.
- ⋄ A naive prediction engine without machine learning was built in Python. A survey was conducted across multiple institutes in India to collect data for the prediction engine of the software.

TECHNICAL SKILLS

Programming Languages	Python, C++/C, Java, Bash, MATLAB
ML/DL Frameworks & Libraries	TensorFlow, PyTorch, Keras, OpenCV, Numpy, Sklearn, Matplotlib
Web Dev (elementary)	HTML, CSS, BootStrap, JavaScript, PHP, MySQL, PostgreSQL
Tools	Linux, Git, Jupyter, AWK, LaTeX
Cloud	Microsoft Azure (Fundamentals and Administrator)

RELEVANT COURSEWORK

Computer Science	Statistical Pattern Recognition, Reinforcement Learning, Introduction to AI
	Distributed Systems, Introduction to ANN and DL, Software Engineering
	Computer Programming, Data Structure and Algorithms, DBMS
	Design & Analysis of Algorithms, Discrete Mathematics, Theory of Computation
	Computer Architecture, Operating Systems
Mathematics	Calculus, Linear Algebra, Data Analytics, Number Theory, Probability
MOOC's (Coursera)	Machine Learning, Specialization in Deep Learning, Specialization in Tensorflow

ACHIEVEMENTS

Successfully completed Hacktoberfest 2019	October 2019
Smart India Hackathon (Software Chapter) Final Event	March 2019
Gold Medal at IoT Workshop organized by Robocart and IIT Bombay e-cell at IIIT-Dharwad	September 2016

POSITION OF RESPONSIBILITY

Volunteer : Workshop on Applied Deep Learning (WADL) - IIT Mandi
July 2019

Organizer : Workshop on Machine Learning & Deep Learning - IIT Dharwad
August 2018

Lab Assistant : Physics Lab - IIT Dharwad
January 2018 - April 2018