MANU S PILLAI

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A bright, talented and self-motivated machine learning practitioner who has excellent organisational skills, is highly efficient and has a good eye for detail. Has a keen interest in algorithms and data structures. Able to play a key role in analysing problems and come up with creative solutions. A quick learner who can absorb new ideas and can communicate clearly and effectively.

PROFESSIONAL EXPERIENCE

CODING BLOCKS
Teaching Assistant – Machine Learning — *June 2019 – December 2019*

GITHUB
GitHub Campus Expert — *January 2019 – Present*

INFORMATION TECHNOLOGY DEPARTMENT, GOVT. OF DELHI
Web Developer Intern — *June 2019 – October 2019*

INDIAN SOCIETY FOR TECHNICAL EDUCATION
Documentation Head — *August 2018 – October 2018*
Documentation Executive — *August 2017 – March 2018*

EDUCATION

BHARATI VIDYAPEETH's COLLEGE OF ENGINEERING — **New Delhi, India**
Bachelor of Technology in Information Technology, Aug 2017 - Present

KENDRIYA VIDYALAYA MASJID MOTH — **New Delhi, India**
Primary – Secondary Education, Mar 2004 – May 2016
(12th - 79.8%, 10th CGPA – 10.0/10.0)

CERTIFICATIONS

- Certification of Completion in Machine Learning (Aug – 2018) [Coding Blocks]
- Certification of Completion in Data Structures and Algorithms in C++ (Dec – 2017) [Coding Blocks]
- Certification of Completion in Python for Developers (Apr – 2018) [Coding Blocks]

PERSONAL PROJECTS

- AluConnect – Nov 2018
  - A social media app for alumni of universities to connect with students and teachers of their respective institutions. Where I have worked on FaceNet and MTCNN deep learning models for creating an image search system for the application.
- GetitValue – Apr to May 2018
  - A web application for users to get real time currency exchange rates in a graphical manner.
- Smart CCTV Surveillance

- A smart software application for video surveillance that tracks and identify individuals in the video footages in real time. The system comprises of YOLO, DeepSort, FaceNet and parallel processing paradigm. Here the whole system works from detecting persons from video frames and tracking them in real time, to detecting when a track is facing towards the camera and recognizing the individual using facial recognition.

- Smart Traffic Accident System
  - A smart mobile based software application for road safety surveillance that detects car crashes and alerts users through the mobile application. STAS works in 2 phases, the first one being, localizing the cars from a roadside CCTV footage, the second being, running the localized car images through a CNN model that predicts the amount of damage the car has undergone. When significant rate of damage is detected, the system pushes an alert into firebase where the application picks it up and alerts the user.

SKILLS

- Tensorflow 
- GitHub 
- C++ 
- Python 
- Data Structures 
- Deep Learning 
- Python for Web 
- Machine Learning 

PUBLICATIONS AND RESEARCH

- Depression Analysis Using Machine Learning – Sept 2018
  - Accepted at ICCM – 2018 and published in ELSEVIER DIGITAL LIBRARY.
- CamAspect: An Intelligent Automated Real Time – Oct 2019 - Present
  - An intelligent automated real time surveillance system based solely on efficient tracking and facial recognition. With this architecture, we aim at compensating for the deficiencies of face recognition-based surveillance methods that is computationally intractable or unreliable to be deployed for real time automated surveillance. Specifically, we adopt a computationally cheap and accurate object tracker Deep Sort and combine it with a very accurate and computationally heavy facial recognition model FaceNet. The system also consists of a smartphone interface for efficient searching and indexing of identifications across timestamps.
- Optimizing Fast Fourier Transform (FFT) Image Compression using Intelligent Water Drop (IWD) Algorithm – Sept 2019 - Present
  - A new technique for optimizing image compression is proposed using the Fast Fourier Transform (FFT) and Intelligent Water Drop (IWD) algorithm. Specific methods are needed to decrease the number of bits required to represent digital images efficiently. This technique of digital image processing is called image compression. A wide range of techniques have been developed over the years, and novel approaches continue to emerge. IWD-based FFT Compression is a new method, and we expect compression findings to be much better than the current method. The work aims to enhance the degree of compression of the image while maintaining the features that contribute most. It optimizes the threshold values using swarm-

based optimization technique (IWD) and compares the results in terms of Structural Similarity Index (SSIM). The criterion of structural similarity of image quality is based on the premise that the human visual system is highly adapted to obtain structural information from the scene, so a measure of structural similarity provides a reasonable estimate of the perceived image quality.

- Under review at Springer Journals SN Applied Sciences.
- Accist: Automatic Traffic Accident Detection and Notification with Smartphones – Sept 2018 - Present
  - Among the foremost vital analysis in Intelligent Transportation System (ITS) is the improvement of frameworks that consequently screen traffic stream at convergences. Perspective of people towards safe driving is degrading day by day and which leads to the increasing rate of accidents. Avoiding an accident is getting tough as there is a remarkable increase in the number of people that are not at law rule abiding. It has been known that if we decrease the time between the accident and providing medical help then we can decrease the accident rate by 6%. This paper centers around advancement of a system for recognizing mishap and sending ready message using iOS application. We have proposed a model that can automatically detect accidents and consist of an iOS application so the user can get the alert of accident along with the GPS location and image of damaged car just to have a little human intervention.

ACHIEVEMENTS

- Winner of Smart Odisha Hackathon – 2018 (Education Sector, outside ODISHA) organized by Govt. of Odisha.
- 1st – Runner up at Smart India Hackathon – 2019
- Winner of Creatathon – 2018 organized by Internity Foundation.

LANGUAGES

- English
- Hindi
- Malayalam

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