Saurav Sharma

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Research Interests

Machine Learning/Deep Learning methods for Computer Vision applications on Video Understanding with tasks related to Action Recognition and Detection

Projects

Project Name	**DenseNet with pre-activated deconvolution for estimating depth map from single image.**
Duration	June, 2016 - May, 2017
Brief Description	The project employs Transfer Learning technique on the recent DenseNet-161 Convolutional Neural Network architecture to predict depth map from a single RGB image. A custom network of deconvolution layers organized in pre-activation style is appended to the DenseNet architecture to increase the spatial resolution of the depth image. The modified architecture is tested on NYU-V2 depth dataset implemented in PyTorch.
Project Name	**A Comparative Analysis Of An Anomaly Detection Algorithm With Neural Networks.**
Duration	April, 2016 - June, 2016
Brief Description	Developed an anomaly detection algorithm using different criterion functions like normal perceptron, relaxation criterion, Mean Square Error (MSE) and Ho-Kashyap where the model weights are either updated incrementally or in batches. The accuracy of the proposed algorithm is compared with the output of the Neural Networks. The Neural Network implemented for comparison consists of a single hidden layer with two nodes apart from input and output layer and performs binary classification on the Yahoo anomaly dataset. Other evaluation metrics like precision and recall are also computed.
Project Name	**A Framework For Pixel Intensity Modulation Based Image Steganography.**
Duration	January, 2016 - March, 2016
Brief Description	Developed an adjacent pixel modulation based image steganography algorithm in the spatial domain whose performance is compared with other state of arts. With enhanced embedding capacity, the resultant stego images from the algorithm minimizes the distortion as compared to other frequency domain algorithms.
Project Name	**Behavior Analysis Of Win32 Applications Using API Hooking.**
Duration	August, 2011 - May, 2012
Brief Description	Implemented an API hooking program for analyzing the behaviour of a normal and a malicious application in terms of type of distinct API calls (including registry calls) made.

Work Experience

Jul 2019 - Nov 2019	Research Intern at STARS Lab INRIA, Sophia Antipolis, France Worked on Activity recognition and detection tasks for long untrimmed videos using 3D poses and RGB video features. The videos demonstrates Activities of Daily Living (ADL) constrained in an indoor environment. Datasets include Charades, PKU-MMD and one unpublished long duration untrimmed video dataset.
Jun 2017 - Apr 2019	Senior Data Analyst at Kantar Analytics, Bengaluru, India Worked on development of machine learning models for prediction and forecasting based on marketing/media data and finding insights from a rich set of media data as per the business requirement.

Jun 2012-Oct 2013	Senior Engineer (Projects) at AGC Networks Limited, Kolkata, India Worked on Implementation of Avaya Voice PBX, Avaya Contact Center and Polycom Video Conferencing Solutions across the government establishments, institutions, public sector companies and private companies.

Education

JUNE, 2017 — M.Tech
National Institute Of Technology, Rourkela, India
Major: Computer Science and Engineering
Advisor: Dr. Pankaj K. Sa
GPA: 9.14/10

JUNE, 2012 — B.Tech
Tezpur Central University, Assam, India
Major: Computer Science and Engineering
Advisor: Dr. Nityananda Sarma
CGPA: 7.76/10

Technical Skills

General Programming:	Python, Matlab, C, C++
Databases:	MySQL
Packages:	PyTorch, Keras, Tensorflow, Scikit-learn, Pandas
Operating Systems:	Linux, Windows

Publications

1. **Saurav Sharma**, Ram Padhy, Suman Choudhury, Nabarun Goswami, Pankaj Sa. DenseNet with pre-activated deconvolution for estimating depth map from single image. In proceedings of **5th Activity Monitoring by Multiple Distributed Sensing (AMMDS) workshop conducted under BMVC, London, United Kingdom, 7 September 2017**.

2. Srijan Das, Arpita Dutta, **Saurav Sharma**, Sangharatna Godboley. A Comparative Analysis of a novel Anomaly Detection algorithm with Neural Networks. In press of **International Journal of Rough Sets and Data Analysis (IJRSDA) by IGI Global, October, 2017**.

3. Srijan Das, **Saurav Sharma**, Imon Mukherjee, Sambit Bakshi. A Framework for Pixel Intensity Modulation Based Image Steganography. In proceedings of **1st International Conference on Advanced Computing and Intelligent Engineering (ICACIE), Odisha, India, 23 December 2016**.

References

Dr. Francois Bremond	Research Director@STARS	INRIA-Sophia Antipolis, France	francois.bremond@inria.fr
Dr. Sambit Bakshi	Assistant Professor	NIT Rourkela, India	bakshisambit@nitrkl.ac.in
Dr. Pankaj Kumar Sa	Associate Professor	NIT Rourkela, India	pankajksa@nitrkl.ac.in