Graduate Student
MS in Computer Science 2019-21
Stony Brook University, NY

HARSHIT

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Areas Of Interests

Computer Vision, Machine Learning(Q-Learning), Data Science(Kaggle), Distributed Systems

Education

M. S. Computer Science, SUNY - Stony Brook, New York [2019-21]
- *Computer Vision, AI, Distributed Systems, Analysis of Algorithms*

B. Tech. Computer Science and Engineering, Indian Institute of Technology, Patna, India, CPI: 8.84/10 [2013-17]
- *Deep Learning, Network Science, Algorithms, Data Structures, Object-oriented Programming, Operating Systems*

Work Experience

Engineer I **Samsung Research | SRI-Delhi** *2017-2019*
- Worked at Product Intelligence team, developed software using deep-learning and computer vision to analyze television performances, reducing work from weeks to days. [Python, OpenCV]
- Worked on Big Data, produced analytics influencing proactive product decisions and monitoring timelines of different product via Predictive Tree models. [Python, Java, Splunk]
- Played a key role in the setup of Memory and Performance task force for profiling Tizen OS ensuring stable software.

Research Internship **Nanyang Technological University, Singapore** *Summer 2016*
- Worked at HESL Lab under Prof Vinod Prasad, deployed to propose and verify bio authentication using EEG bio metrics.
- Collected and preprocessed EEG responses of subject on audio and visual stimuli.[C#, MATLAB]
- Implemented the authentication system, achieving 80% accuracy. Published at IECBES 2016. [Matlab, C#] https://bit.ly/2m2WKII

Supervisor :- Prof Vinod A. Prasad

Research Internship **Indian Institute of Technology, Kharagpur** *Summer 2015*
- Worked at the CNeRG lab, under Dr Niloy Ganguly and with Dr Abir De, on EPS graphs generated via MATLAB to format these EPS graphs (each graph consists of 1500 – 2000 lines) using file I/O. [Python, Bash]

Supervisor :- Prof Niloy Ganguly

Projects

Copter QL: The Q-Learning Helicopter Game (2019) *Deep-learning, Pygame*
- Aimed to make agent learn to play copter using deep reinforcement learning techniques.
- Implemented a Deep QNetwork (DQN) for learning Q-values for approximate state-action pairs.
- Agent balanced exploration and exploitation using experience replay and update delay, achieving the best strategy to score. https://bit.ly/2m1FWlo

Adaptive Object Tracking (2016-17) *Python, Opencv*
- Implemented a pedestrian tracker using HoG and condensation algorithm.
- Evaluated results on PET 2009 dataset, with accuracy of 93%.
- The system can also track a person through various cameras in surveillance system.

Centrality Metrics in Dynamic Networks (2017) *Python*
- A new hybrid centrality metric is proposed, consisting of PageRank, average importance over time & aging factor.
- Citations network is used as the dataset. Metrics obtained corresponding to important publications in the course of time were obtained as desirable.

Lecture Assistant (2016) *Python, RPi, Arduino, BASH*
- Developed an IoT based device to track the lecturer, and record A video lecture.
- A camera set over a servo motor which was controlled via a Raspberry Pi (or Arduino). The camera rotates towards the moving lecturer and streams its frames over the server.
- The server has a webpage where students can discuss doubts and take quizzes related to the topic. https://bit.ly/2IJ3ZWK

Road Traffic Congestion Sensing (2014) *PHP, MySQL*
- The front-end sensor collects data, and triggers them to the server at some defined locations on the roads.
- The server manipulates the large sets of data received from vehicles, using Map-Reduce and produce required road traffic measurements[such as average speeds, peak hours, etc.]. Accepted at IPSN 2015. https://bit.ly/2kQQP9B

Conference Publications

- Online Electroencephalogram (EEG) based biometric authentication using visual and audio stimuli, IECBES 2016
- Road Congestion Sensing via Crowdsourcing and MapReduce, IPSN 2015

Other Experiences And Achievements

- Graduate Teaching Assistant, Data Structures (CSE214) Fall '19, CS - Stonybrook University, New York
- Bronze medal in IoT Innovation at Inter-IIT tech meet (2016). Second in IEEE ISED Grand Challenge December 2016.
- General Secretary Cultural Affairs, Student Gymkhana, & B. Tech. Senior Year Genearal Secretary, IITP (2016-17)
- Competition Expert @ Kaggle [Currently ranked - 3468]

Languages And Others

Java; Python(keras, pandas, opencv, scikit, etc); C; GOLANG; MySQL; Latex; HTML; CSS; JS; Django; Linux