

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

# HARSHIT

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<https://harshit13.github.io/>

## Areas Of Interests

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

## Education

- M. S. Computer Science, Stony Brook University, New York [2019-21]  
- *Computer Vision, Distributed Systems, Analysis of Algorithms, AI*
- 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, Visual Display, developed software to analyze television performances, reducing work from weeks to days, using deep-learning and Computer Vision [Python, OpenCV, Keras]  
- Worked on Big Data, produced stats and 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 authentication using EEG bio metrics.  
- Collected and preprocessed EEG responses of subjects on audio and visual stimuli.[C#, MATLAB]  
- Implemented the authentication system, achieving 80% accuracy. Published at IECBES 2016. [Matlab, C#] <https://bit.ly/2m2WKII>
- **Graduate Teaching Assistant, Data Structures (CSE214) Fall '19, CS - Stonybrook University, New York**  
- **Research Internship, CNeRG lab, under Prof Niloy Ganguly, IIT Kharagpur, India [Summer 2015]**

## Conference Publications

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

## 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 after 3000 attempts at gameplay. <https://bit.ly/2m1FWIo>
- Adaptive Object Tracking (2016-17)** *Python, OpenCV*  
- Implemented a pedestrian tracker using HoG and condensation algorithm as bachelors final year project. [Top 6 out of 55 students].  
- Accuracy around 90% on PET 2009 dataset. 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[Flask,OpenCV], RPi, Arduino*  
- 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>
- SRIRU (2015)** *Django, JS, Bootstrap*  
- Developed a web-app for my undergrad college [deployed successfully] to ease the management of Project life-cycle between sponsors, investigator, supervisors, vendors and researchers.  
- Each stakeholder have their portal, where they can update, view the contents of the centralized database. <https://bit.ly/2BdkbUa>
- Road Traffic Congestion Sensing (2014)** *PHP, MySQL, Android*  
- 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>

## Other Experiences And Achievements

- 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 General Secretary, IITP (2016-17)  
- **Google Kickstart '19 Round H [Rank 405]; Competition Expert @ Kaggle [Currently ranked - 3547]**

## Languages And Others

Java; Python(PyTorch, Keras, scikit, Opencv); GOLANG; C; MySQL; Latex; HTML; CSS; JS; Django; Linux