

Ayush Shrivastava

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EDUCATION

- **Georgia Institute of Technology** Atlanta, USA
Masters in Computer Science (Specialization: Machine Learning) Aug 2019 – Present
- **Indian Institute of Technology (BHU) Varanasi** Varanasi, India
Bachelors of Technology in Computer Science and Engineering; GPA: 9.20/10.0 Jul 2014 – May 2018

RESEARCH INTERESTS

Computer Vision, Deep Learning, Natural Language Processing, Robotics

AWARDS AND ACHIEVEMENTS

- Travel Scholarship for **Google Summer of Code Mentor Summit 2018**, Google Sunnyvale
- Presented our project, **Memento** at **Microsoft's code.fun.do SHOWCASE 2017**; received Travel Scholarship
- Winner, **code.fun.do 2017**; hackathon conducted by **Microsoft**
- Runner up, **code.fun.do 2016**; hackathon conducted by **Microsoft**
- Winner, Enigma; ML hackathon conducted by CodeFest 2016 (Computer Science Fest, IIT BHU)
- Secured **All India Rank 859** in IIT JEE (Advanced) 2014 among 1.5 Lakh students (among top 0.5%)
- **Vibrant Academy Scholarship recipient** (2012 - 2014)

PUBLICATIONS

- **Chasing Ghosts: Instruction Following as Bayesian State Tracking**
Peter Anderson*, Ayush Shrivastava*, Devi Parikh, Dhruv Batra, Stefan Lee
Neural Information Processing Systems (NeurIPS) 2019
- **Automated digital mammogram segmentation using Dispersed Region Growing and Sliding Window Algorithm**
Ayush Shrivastava*, Arpit Chaudhary*, Devang Kulshreshtha, Vibhav Prakash Singh, Rajeev Srivastava
International Conference on Image, Vision and Computing (ICIVC) 2017
- **Mammogram Classification Using Selected GLCM Features and Random Forest Classifier**
Vibhav Prakash Singh, Ayush Shrivastava, Devang Kulshreshtha, Arpit Chaudhary, Rajeev Srivastava
International Journal of Computer Science and Information Security (IJCSIS) 2016

(* denotes equal contribution)

WORK EXPERIENCE

- **Georgia Institute of Technology** Atlanta, GA
Visiting Research Scholar | Supervisor: Prof. Devi Parikh, Prof. Dhruv Batra Aug 2018 - May 2019
 - Worked on finding the goal position in **Vision and Language Navigation** using Bayesian State Tracking
- **Google Summer of Code 2018** Atlanta, GA
Mentor | CloudCV organisation Apr 2018 - Aug 2018
 - Mentored a student for **Fabrik** project. Added support for importing/exporting models from TensorFlow. Built real time collaboration feature where multiple users can edit or review the model at the same time.
- **Nanyang Technological University [code]** Singapore
Research Intern | Supervisor: Prof. Lam Siew Kei, Prof. Thambipillai Srikanthan May 2017 - Jul 2017, Dec 2017

- Built fast semantic segmentation models for autonomous driving by reducing complexities in model architecture. Explored and combined different deep learning models like PSPNet and MobileNets.

• Defence Research and Development Organization

New Delhi, India

Research Intern | Supervisor: Dr. Saibal K. Pal

May 2016 - Jul 2016

- Implementation and performance analysis of Extreme Learning Machines and its variants on object detection and blind blur detection.

SELECTED PROJECTS

- **Fabrik: Build, visualize, and design neural nets in browser** [<http://fabrik.cloudev.org>]
 - Online collaborative platform to build, visualize and train deep learning models via a simple drag-and-drop interface; **40+ open source contributors; 900+ stars; 230+ forks**
- **Real-time Uniform Passenger Distribution for Metro Transport Systems using Machine Learning and Fog Computing**
B.Tech Thesis Project | Supervisor: Prof. Hari Prabhat Gupta
 - Developed a dynamic programming solution for optimal crowd distribution of onboard passengers in metro, assuming inter-carriage travel is allowed and integrated it with fog architecture in distributed setting.
 - Developed a solution to alert passengers about crowded carriages using history of crowd distribution.
- **Memento: Never forget a thing!** [[poster](#)] [[demo](#)]
 - Built an Android app which acts as an *assistive memory*. It captures images, records audio and save them in the processed form of events of a day which can be later searched and retrieved.
- **Identification of User Transport using Smartphone Sensors** [[poster](#)]
 - Built an app for collection of a new dataset of smartphone sensor values for transport mode detection.
 - Hierarchical classification of transport modes (stationary, walking, bicycle, motorbike, car, bus, train, airplane) using GPS, accelerometer, gyroscope sensors.
- **Automated Retrieval Of Similar Mammograms Using Segmentation** [[poster](#)]
 - Developed an approach for segmentation of mammograms by automating the preprocessing step (selection of Region of Interest, removal of pectoral muscles) previously done manually; followed by their clustering based on their texture features
- **Feature Extraction And Classification For Mammograms**
 - Image enhancement and extraction of texture features using Gray-level Co-occurrence Matrix.
 - Feature selection by Adaboost, classification by Random Forest into normal and abnormal mammograms.

SERVICE ROLES AND ACADEMIC ACTIVITIES

- **VQA Challenge 2019**
Lead Organizer
- **Visual Dialog Challenge 2019**
Co-organizer
- **Visual Question Answering and Dialog Workshop @ CVPR 2019**
Co-organizer
- **Visual Dialog Challenge 2018**
Co-organizer
- **ITW1: Python and Shell Programming**
Teaching Assistant

Spring 2017
IIT (BHU) Varanasi
- **CS 101: Computer Programming and Linux**
Teaching Assistant

Fall 2016
IIT (BHU) Varanasi

PROGRAMMING SKILLS

- **Languages:** Python, C, C++, C#, Java, Javascript, Lua, MATLAB
- **Frameworks:** PyTorch, TensorFlow, Torch, Django
- **DevOps:** Docker, Amazon Web Services, Google Cloud
- **Version Control:** Git
- **Mobile Applications:** Android, Windows Phone App Development