Ayush Shrivastava

http://ayshrv.github.io
GitHub: @ayshrv

Email : ayshrv@gatech.edu
Mobile : +1-470-449-5216

Education

- **Indian Institute of Technology (BHU) Varanasi** — Varanasi, India
  Bachelors of Technology in Computer Science and Engineering; GPA: 9.20/10.0 — *July 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

- **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
  (* denotes equal contribution)

- **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

Work Experience

- **Georgia Institute of Technology** — Atlanta, GA
  Visiting Research Scholar | Superviser: Prof. Devi Parikh, Prof. Dhruv Batra — *Aug 2018 - Present*
  - Co-organized the first Visual Dialog Challenge at ECCV 2018.
  - Working on building *grounded spatial memory* for Vision and Language Navigation task to reduce the distance covered by the agent to reach the goal position.

- **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** — Singapore
  Research Intern | Superviser: Prof. Lam Siew Kei, Prof. Thambipillai Srikanthan — *May 2017 - July 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 - July 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.cloudcv.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.

Teaching Experience

- **ITW1: Python and Shell Programming** Spring 2017
  Teaching Assistant
- **CS 101: Computer Programming and Linux** Fall 2016
  Teaching Assistant

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