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SHIVAM AGARWAL

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EDUCATION

Georgia Institute of Technology August 2016 - December 2017
- Masters in Electrical & Computer Engineering, CGPA: 4.0/4.0

Indian Institute of Technology Hyderabad August 2012 - July 2016
- Bachelor of Technology (Hons) in Electrical Engineering, CGPA: 9.25/10

EXPERIENCE

Virtual Reality, Intern, Qualcomm Research, Bangalore May 2017 – Present
- Developing deep learning based methods for inpainting dis-occlusion artifacts - a limitation of Asynchronous Timewarp (ATW).

Graduate Teaching Assistant (GTA), Machine Learning (CS 7641) Jan 2017 - May 2017

Cross-Spectral Palm Recognition, Intern, The Hong Kong Polytechnic University May 2015 – July 2015
- Experimented with different optimization methods for selecting features that showed high discriminability in both visible (palm-print) and infrared (palm-vein) spectra. Such features ensure low equal error rate in cross-spectral matching.

Foot pressure measurement using Image Processing, Intern, IIT Delhi May 2014 – July 2014
- Implemented a system to obtain the pressure map of human feet economically.
- Image of feet was captured using fisheye camera, and subjected to processing at various levels including rectilinear correction, radial de-blurring and automated segmentation.

ACADEMIC PROJECTS

Improving Lung Cancer Detection (Statistical Machine Learning, Prof. Mark Davenport, Georgia Tech, 2017)
- Experimented with various classifiers including k-NN, SVM and those based on CNNs for improving the accuracy of lung cancer detection. These methods were evaluated on Kaggle dataset (https://goo.gl/lUuGpC).

Color Image Denoising using Autoencoder (Prof. Ghassan AlRegib, Georgia Tech, 2016)
- Implemented and analyzed learning approaches like selective regularization and image reconstruction approaches like Conjugate Gradient and regularized pseudo-inverse for denoising color images using single layer autoencoder.

Choroidal Blood Vessel Tracing (Undergraduate Thesis, Dr. Soumya Jana, IITH, 2016)
- **Accepted** at the *IEEE International Conference on Biomedical and Health Informatics* (**BHI 2017**).
- The objective was to create a 3D choroidal vessel net using information acquired from multiple OCT scans.
- Modeled the problem as a Multiple Target Tracking problem and developed a framework to deal with the cases of vessel splitting and merging, which are not accounted for in a classical target tracking problem.

Color Restoration of Old Photos (Image & Video Processing, Dr. Sumohana, IITH, 2015)
- Surveyed and analysed various color restoration techniques like Gray World, Variational Retinex and Multi Scale Retinex with Color Restoration (MSRCR) and observed that MSRCR works best among them.

Handwritten Digit Recognition (Deep Learning, Dr. K Sri Rama Murthy, IITH, 2015)
- Developed a generative model of the joint distribution of handwritten digit images and corresponding labels.

COURSES

Fall 2016: Advanced Topics in DSP, Digital Image Processing, Advanced Programming Techniques
Spring 2017: Statistical Machine Learning, Convex Optimization, Medical Image Processing, Coding Theory

SKILLS

C/C++, Python, TensorFlow, PyTorch, CUDA, OpenCV, MATLAB, Microsoft Visual Studio, OpenGL, Atmel Studio, Arduino IDE

EXTRA-CURRICULAR

- Core member of marketing for ELAN 2k14, the cultural festival of IIT Hyderabad.
- Core Member of Robotics, the robotics club and Electronika, the electronics club at IIT Hyderabad.
- Used Arduino UNO R3 as a low cost alternative to the **Makey-Makey** project (MIT-Media Lab). Demo: https://goo.gl/drKCXe.
- Programmed an autonomous bot for ABU-ROBOCON 2014, an Asian Oceanian College robot competition, held at Pune, India.

✦ Honors And Awards

- Awarded the **Institute Silver Medal** at IIT Hyderabad for scoring the highest CGPA in the B.Tech Program in Electrical Engineering for the graduating class of 2016.
- Selected to visit Japan as a participant of **JENESYS 2009**, **Japan,** a youth exchange program conducted by Japan International Cooperation Centre (JICE).