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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

Systems Engineer, Autonomous Driving Research, Qualcomm, San Diego Jan 2018 - Present
- Developing reliable sensor fusion techniques for constructing an accurate Road-World Model.

Virtual Reality, Intern, Qualcomm Research, Bangalore May 2017 – July 2017
- Developed 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 - December 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

Fooling Visual Question Answering (VQA) model (Vision and Language, Prof. Devi Parikh, Georgia Tech, 2017)
- (Ongoing) Experimenting with ways to fool a VQA model by injecting imperceptible noise in the image or re-phrasing the question. The project is inspired by related prior work on state-of-the-art image classifiers. (Goodfellow et al. 2014)

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.

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
Fall 2017: Computer Vision, Artificial Intelligence, Vision and Language

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).