Prakruti Catherine Gogia

Mobile: +1 (412) 452-5041 *Email:* pgogia@andrew.cmu.edu

Education

Carnegie Mellon University (CMU) School Of Computer Science **Pittsburgh, PA**
M.S., Computer Vision (December 2017)

Indian Institute of Technology, Madras (IITM) **Chennai, India**
B.Tech. and M.Tech, Electrical Engineering (May 2016), **GPA: 8.86/10**
Minor: Systems Engineering, GPA: 9.33/10

Summary

I am interested in computer vision and machine learning internship opportunities for Summer 2017

Skills

Languages: Python, C, MATLAB (fluent) C#, C++, HTML (familiar)
Software: OpenCV, Unity, Vuforia

Internships

Computer Vision, Mad Street Den Systems **India**
Navigation Aid for Visually Impaired **May 2015 - July 2015**
- Worked with a team of 4 to build a prototype for navigation using a monocular camera; incorporated video stabilization, obstacle detection and object segmentation capabilities.
- Classified segmented objects into 5 different classes using a Deep Belief Network; achieved 96% accuracy for the car class.

Image Processing, Healthcare Technology Innovation Center **India**
Tumour Segmentation in CT Scans **May 2013 - July 2013**
- Built a semi-interactive segmentation tool using the Random-Walker algorithm and tested its robustness to noise.
- Designed an intuitive UI to be used by doctors for batch segmentation reducing manual effort by 70%.

Research

Dual Degree Thesis, IIT Madras **India**
Augmented Reality Application for Surgery **Jan 2016 - July 2016**
- Converted an Oculus Rift into an augmented reality device using two webcams for video see-through.
- Designed a proof of concept using Vuforia for tracking and augmenting 3D content and built a user-interface using the Leap Motion Controller; demonstrated the prototype to doctors.

Signal Processing, RWTH Aachen, Germany **May 2014 - July 2014**
- Awarded a **DAAD WISE Scholarship** for conducting research in Germany.
- Implemented a **real-time** wavelet-based algorithm to detect End Diastolic Pressure robustly from Left Ventricular Pressure signals.

Projects

Image Stitching **Spring 2015**
- Implemented panorama stitching using a pipeline for feature finding using Harris corners, matched BRIEF and SIFT descriptors and performed a homography calculation using RANSAC.
- Incorporated methods to make the BRIEF descriptor rotation and scale-invariant.

Talking Portraits : Animating photos to utter a sentence **Ongoing**
- Designing a tool that automatically animates an image with the correct mouth shapes and expressions when given a sentence.
- Learning a deformable model for facial expression encoding through video data.

Optical Flow and Background Subtraction **Fall 2016**
- Implemented the Lucas-Kanade algorithm with improved performance through the inverse compositional, template correction, affine correction and appearance basis methods.
- Used dominant motion computed by LK algorithm to perform background subtraction.

Courses

CMU: Machine Learning*, Computer Vision*, Mathematics for Robotics* (*Fall 2016)
IITM: Digital Video and Image Processing, Medical Image Analysis. Data Structures and Algorithms
Teaching Assistant: Python for Scientific Computing (Fall 2015), Machine Learning for Computer Vision (Spring 2016)