

# Suriya Narayanan Lakshmanan

<https://suriyanitt.github.io> | <https://in.linkedin.com/in/suriya-narayanan> | 412.626.8524 | [snlakshm@andrew.cmu.edu](mailto:snlakshm@andrew.cmu.edu)

## EDUCATION

### CMU, ROBOTICS INSTITUTE

#### MASTER'S IN COMPUTER VISION

Dec 2018 | Pittsburgh, PA

Cum. GPA: 3.83/4.0

### NIT, TIRUCHIRAPPALLI

#### BACHELOR OF TECHNOLOGY IN ELECTRICAL AND ELECTRONICS ENGINEERING

May 2014 | Tiruchirappalli, India

Cum. GPA: 8.8 / 10.0

## COURSEWORK

Intro to Machine Learning  
Intro to Computer Vision  
Math fundamentals for Robotics  
Visual Learning and Recognition  
Deep Reinforcement Learning  
Geometry based maths in Vision  
Computational Photography

Algorithms and Data Structures  
Operating Systems  
Object Oriented Programming  
Digital Signal Processing

## SKILLS

### PROGRAMMING

C • C++ • Python • Matlab  
• OpenCL •  $\text{\LaTeX}$

### LIBRARIES AND FRAMEWORKS

TensorFlow (Python and C++) •  
PyTorch • OpenCV • Numpy •  
OpenAI gym • scikit-learn

### OPERATING SYSTEMS

Linux • Windows • Android

### OTHER SOFTWARE

Git • Microsoft Office • GIMP

## EXPERIENCE

### SAMSUNG RESEARCH AMERICA | COMPUTER VISION RESEARCH INTERN

May 2018 - August 2018 | Mountain View, USA

- Developed human pose datasets for proprietary sensors using unsupervised domain adaptation and trained human pose estimation network and developed a C++ application for deployment

### TEXAS INSTRUMENTS | SOFTWARE ENGINEER

July 2014 - June 2017 | Bangalore, India

- Improved accuracy of TI CNN model for driver drowsiness detection by 2x
- Improved Adaboost classifier for object detection yielding 10% more true detections. [*Efficient object detection and classification on low power embedded systems, ICCE 2017*]
- Developed a set of Image Processing OpenCL kernels optimized for TI DSP. [*Understanding the Performance Benefit of Asynchronous Data Transfers in OpenCL Programs Executing on Media Processors, HiPC 2015*]

### TEXAS INSTRUMENTS | COMPUTER VISION INTERN

May 2013 - July 2013 | Bangalore, India

- Improved an existing homography based Ground Plane Detection by 10%. [*Ground plane detection, Patent 2017*]. [*Improved ground plane detection in real time systems using homography, ICCE 2014*]

## ACADEMIC PROJECTS

### SMART RECONSTRUCTION

January 2018 - May 2018 | CMU, Pittsburgh

Reconstructed traffic from a single stationary camera using keypoint detection, tracking and geometric constraints

### LEARNING HIERARCHICAL POLICIES IN DYNAMIC ENVIRONMENTS

March 2018 - May 2018 | CMU, Pittsburgh

Developed an RL agent to quickly adapt to a dynamic environment with sparse reward

### WEAKLY SUPERVISED OBJECT DETECTION

March 2018 - March 2018 | CMU, Pittsburgh

Implemented weakly supervised object detection algorithm: WSDDN

### LIDAR PLUS IMU SLAM

February 2018 - March 2018 | CMU, Pittsburgh

Fused LIDAR with IMU by implementing hector slam with the IMU extension

### DIGITAL ART USING SFM

October 2017 - November 2017 | CMU, Pittsburgh

Developed an application to create portrait effect from single camera using SFM and 3D segmentation

### INTELLIGENT INPAINTING

October 2017 - November 2017 | CMU, Pittsburgh

Developed an application that removes a person from an image from a single click using machine learning and exemplar inpainting