

# Suraj M S

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## RESEARCH INTERESTS

My research interests lie in computer vision and deep learning with an emphasis on perception related problems.

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## EDUCATION

- **Georgia Institute of Technology** Atlanta, United States  
*Master of Science in Computer Science (Machine learning/Computer Vision); GPA: 3.8/4.0* Aug 2016 – May 2018
- **Birla Institute of Technology and Science, Pilani** Goa, India  
*Bachelor of Engineering in Electrical and Electronics; GPA: 7.85/10.0* Aug 2011 – Jul 2015

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## EXPERIENCE

- **Blue Vision Labs** London, UK  
*Research Engineering Intern - CV/ML* May 2017 - Mar 2018
  - **Pose graph optimization:** Worked on the pose graph optimization step of the map building pipeline and made it faster by an order of magnitude.
  - **Visual vehicle tracking through noise and occlusions using crowd-sourced maps:** Built a 3D vehicle tracking pipeline from scratch on top of city-scale localization system  
**Under submission pending review at IROS 2018**
  - **Motion prediction from large-scale motion priors using mobile phone-equipped vehicles:** Proposed a non-parametric method for predicting future poses of vehicles in urban traffic by leveraging crowd-sourced motion data and unsupervised learning of environment structure.  
**Accepted for oral presentation at IV 2018**
- **Georgia Institute of Technology** Atlanta, US  
*Backend developer* Jan 2017 - May 2017
  - **MINED group:** Wrote and deployed a complete Django+PostgreSQL system for Equipment and Lab Automation project supporting various Material Informatics specific research and data management tools.  
The system was integrated with Raspberry-Pi based scanner that automatically authenticates users and processes samples into the cloud database.
- **Google Summer of Code** Remote, IN  
*Python Software Foundation* May 2014 - Aug 2014
  - **VisPy:** Implemented fast triangulation algorithms in numpy and expanded the visuals engine to allow users to draw with rich set of primitives without any knowledge of OpenGL.  
<https://github.com/vispy/vispy/>

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## PROJECTS

- **Generative adversarial attribute-to-image synthesis:** Inspired by Text-to-Image synthesis [Reed et. al 2016] (summary) trained a DCGAN based network on SUN attributes dataset by eliminating the text-to-embedding space network and directly manipulating an embedding space learnt from attribute labels of an image.  
Code: [https://github.com/braindeadpool/image\\_synthesis\\_gan](https://github.com/braindeadpool/image_synthesis_gan)
- **Real time object detection and tracking:** Re-implemented single shot multibox detector in Keras 2.0  
Implemented real-time multi-target vehicle and pedestrian tracker by adding a particle filter post processing step to the SSD output and benchmarked both SSD and YOLO based trackers on the challenging MOT dataset.

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## PROGRAMMING SKILLS

- **Languages:** Python, C++
- **Frameworks:** Tensorflow, PyTorch, Keras, Ceres-solver