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Research Interests

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

Education

- **Georgia Institute of Technology** — Atlanta, United States
  Master of Science in Computer Science; GPA: 3.8(expected) — *Aug 2016 – May 2018(expected)*
- **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*

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/

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
- **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.

Programming Skills

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