

EDUCATION

- **Georgia Institute of Technology** Atlanta, GA
Ph.D. in Computer Science; GPA: 3.84 Aug. 2012 – Aug 2017
- **IIIT Hyderabad** Hyderabad, India
Master of Science in Computer Science; GPA: 4.0 (10.0/10.0) Aug. 2010 – July. 2012
- **IIIT Hyderabad** Hyderabad, India
Bachelor of Technology (Honors) in Computer Science; GPA: 3.31 (8.28/10.0) Aug. 2006 – July. 2010

EXPERIENCE

- **Magic Leap** Sunnyvale, CA
Senior Software Engineer Oct 2017 - Present
 - **Correspondence Estimation for Localization:** Implemented various methods to improve correspondence estimation in localization
 - **Deep Keyframe Selection:** Designing and implementing a deep network which learns an image embedding to improve retrieval for localization
- **Institute for Robotics and Intelligent Machines, Georgia Tech** Atlanta, GA
Graduate Research Assistant August 2012-August 2017
 - **Distributed Object-based SLAM:** Proposed a distributed algorithm based on Distributed Gauss-Seidel to estimate the 3D trajectories of multiple cooperative robots from relative pose measurements. Our approach has several advantages. It requires minimal information exchange, has an anytime flavor, scales well to large teams, and it has a straightforward implementation. Extended the distributed SLAM framework to include object level semantics resulting in a distributed object level SLAM approach.
 - **Memory-efficient SLAM:** Proposed an approach to scalable SLAM that is exactly sparse. Used Alternating direction method of multipliers to enforce consistency among various subgraphs.
- **Fyusion Inc.** San Francisco, CA
Research Intern June 2016-August 2016
 - **Loopy Fyuses:** Developed an algorithm for Fyuse stabilization. Developed loop closure algorithm to handle loopy fyuses.
- **Center for Visual Information Technology, IIIT Hyderabad** Hyderabad, India
Research Assistant August 2010-August 2012
 - **Bundle Adjustment on GPU:** Developed a hybrid implementation of sparse bundle adjustment on the GPU using CUDA, with the CPU working in parallel. The algorithm is decomposed into smaller steps, each of which is scheduled on the GPU or the CPU. Our implementation outperforms the CPU implementation significantly, achieving a speedup of 30-40 times over the standard CPU implementation for datasets with upto 500 images on an Nvidia Tesla C2050 GPU.
 - **Visibility Probability Structure from SfM Datasets:** We encode the visibility information between and among points and cameras as visibility probabilities. The conditional visibility probability of a set of points on a point (or a set of cameras on a camera) can rank points (or cameras) based on their mutual dependence. We combine the conditional probability with a distance measure to prioritize points for fast guided search for the image localization problem.

PUBLICATIONS

- Distributed Mapping with Privacy and Communication Constraints: Lightweight Algorithms and Object-based Models.(**IJRR 2017**)
- Data-Efficient Decentralized Visual SLAM(**ICRA 2018**)
- Distributed Trajectory Estimation with Privacy and Communication Constraints: a Two-Stage Distributed Gauss-Seidel Approach(**ICRA 2016**)
- Exactly Sparse Memory Efficient SLAM using the Multi-Block Alternating Direction Method of Multipliers(**IROS 2015**)

- Information based Reduced Landmark SLAM(**ICRA 2015**)
- SLAM with Object Discovery, Modeling and Mapping(**IROS 2014**)
- Geometry Directed Browser for Personal Photographs(**ICVGIP 2012**)
- Visibility Probability Structure from SfM Datasets and Applications (**ECCV 2012**)
- Practical Time Bundle Adjustment for 3D Reconstruction on GPU (**CVGPU 2010**)

CONFERENCES ATTENDED

- IFRR International Symposium on Experimental Robotics 2016
- IEEE International Conference on Robotics and Automation 2015, 2016
- IEEE/RSJ International Conference on Intelligent Robots and Systems 2014, 2015
- UCLA IPAM Computer Vision Summer School 2013
- Winter Vision Meetings 2013
- European Conference on Computer Vision 2010

ACADEMIC DUTIES

- Served on the Program Committee of Robotics Science and Systems conference in 2016.
- Reviewer for IEEE International Conference on Robotics and Automation since 2015.
- Reviewer for IEEE/RSJ International Conference on Intelligent Robots and Systems since 2014.
- Journal reviewer for IEEE Transactions of Robotics and IEEE Robotics and Automations letters.

PROGRAMMING SKILLS

- **Languages:**C, C++, Python, MATLAB, CUDA
- **Libraries:**OpenCV, GTSAM, PCL, ROS, Eigen, Boost, PyTorch, Numpy, SciPy