

Tejas Khot

<https://tejaskhot.github.io>

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Location : Seattle, WA

EDUCATION

- **Carnegie Mellon University, School of Computer Science** Pittsburgh, PA
Master of Science in Robotics (Research based); GPA: 4.00/4.33 08/2017 – 05/2019
 - Thesis: Unsupervised Learning for 3D Reconstruction and Blocks World Representation
 - Machine Learning, Computer Vision, Deep Reinforcement Learning, Geometry Methods for Computer Vision
- **University of Mumbai** Mumbai, India
Bachelor of Engineering in Computer Engineering; GPA: 8.91/10.0 08/2012 – 07/2016

TECHNICAL SKILLS

Python, PyTorch, Blender, MeshLab, MATLAB, JavaScript, Amazon Mechanical Turk, Video processing

EXPERIENCE

- **Amazon Web Services** Seattle, WA
Applied Scientist - Computer Vision and Machine Learning 08/2019 - Present
 - Building new computer vision and machine learning features for upcoming products in a stealth mode team
- **Carnegie Mellon University** Pittsburgh, PA
Research Assistant with Dr. Martial Hebert 09/2017 - Present
 - Developing deep learning methods for scene understanding and segmentation of 3D point clouds (LIDAR, stereo)
 - Combining camera geometry with deep learning for multi-view stereo reconstruction
- **Virginia Tech** Blacksburg, VA
Research Intern with Dr. Dhruv Batra, Dr. Devi Parikh 07/2016 - 05/2017
 - Developed a novel data-collection interface for large scale data annotations via Amazon Mechanical Turk
 - Served as Teaching Assistant, Introduction to Machine Learning taught by Dr. Stefan Lee, Fall 2016
- **Google Summer of Code**
Google Contract Developer, The OpenCog Foundation 05/2015 - 08/2015
 - Implemented the Deep Spatio-Temporal Inference Network (DeSTIN) framework using Theano utilizing GPUs
 - Improved accuracy of DeSTIN by **21%** using stacked convolutional auto-encoders with variable noise

PUBLICATIONS

- **Learning Unsupervised Multi-View Stereopsis via Robust Photometric Consistency**
 - Learning to reconstruct 3D objects without 3D/2.5D ground truth; (Results on Datasets: DTU, ETH3D)
 - Accepted to CVPR 2019 — Oral at the 3D Scene Understanding for Vision, Graphics, and Robotics workshop
- **Point Completion Network**
 - Estimating complete shape geometry from partial 3D point clouds; (Results on Datasets: ShapeNet, KITTI)
 - Accepted to 3DV 2018 — Oral, Honorable mention for Best Paper Award
- **Making the V in VQA Matter: Elevating Role of Image Understanding in Visual Question Answering**
 - Overcoming language priors; counter-example based explanation; released new benchmark dataset VQA 2.0
 - Accepted to CVPR 2017, IJCV 2018

SELECTED PROJECTS

- **3D Volumetric Primitives Based Spatial Map**
 - Representing buildings from aerial LIDAR point clouds using lightweight parameterized shapes; obtained over **90%** reduction in number of points required compared to 3D meshes; performed sim2real transfer deep learning
- **Efficient Exploration and Navigation in Unknown Environments with External Spatial Memory**
 - Combined deep reinforcement policy learning algorithms (A2C, A3C) with an external memory architecture (Neural Map, LSTM) to train an agent in simulation for: 1) exploration of full map, 2) returning to start position.
- **Learning Point Correspondences With Wider Viewpoints**
 - Using CNN features as local feature descriptors and comparing against SIFT on Pascal Keypoint Dataset based on detection accuracy over planar rotations

LEADERSHIP AND ACHIEVEMENTS

- Philips Sleep Challenge Competition - Winner (3rd place)
- STARS Space Innovation Competition - Winner (1st place) 09/2017
- Junior Board member, Graduate Entrepreneurship Club, CMU 09/2017 - 09/2018
- Founder and Chairperson, Association of Computing Machinery(ACM) Student Chapter 08/2014 - 08/2015