Tejas Khot

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EDUCATION

- **Carnegie Mellon University, School of Computer Science** — Pittsburgh, PA
  Master of Science in Robotics [Research based]; GPA: 4.00/4.33 — *Aug 2017 – May 2019 (Expected)*
  - 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 — *Aug 2012 – July 2016*

TECHNICAL SKILLS

Python, Pytorch, Blender, Meshlab, MATLAB, Javascript, Amazon Mechanical Turk, Flask, Redis

PUBLICATIONS

- **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

EXPERIENCE

- **Carnegie Mellon University** — Pittsburgh, PA
  Research Assistant with Dr. Martial Hebert — *Sept 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 — *July 2016 - May 2017*
  - Developed a novel data-collection interface for large scale data annotations via Amazon Mechanical Turk
  - Benchmarked state-of-art VQA models on the VQA 2.0 dataset with an explanation module for interpretability
  - Served as Teaching Assistant, Introduction to Machine Learning taught by Dr. Stefan Lee, Fall 2016
  - Organized the VQA Workshop at CVPR 2017; helped setup website, web demos
- **University of Malaya** — Kuala Lumpur, Malaysia
  Research Intern with Dr. Chu Kiong Loo — *June 2015 - July 2015*
  - Developed a system for emotion classification based on deep learning and built a web interface for real-time usage
- **Google Summer of Code**
  Google Contract Developer, The OpenCog Foundation — *May 2015 - Aug 2015*
  - Implemented the Deep Spatio-Temporal Inference Network (DeSTIN) framework using Theano utilizing GPUs
  - Improved the accuracy of DeSTIN by **21%** using stacked convolutional auto-encoders with variable noise

SELECT PROJECTS

- **3D Volumetric Primitives Based Spatial Map**
  - Representing buildings from aerial LIDAR point clouds using lightweight parameterized shapes; obtained over **90%** reduction in the 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

- STARS Space Innovation Competition - Winner — Sept 2017
- Junior Board member, Graduate Entrepreneurship Club, CMU — Sept 2017-18
- Founder and Chairperson, Association of Computing Machinery(ACM) Student Chapter — Aug 2014-15