

# Li Yi

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## EDUCATION

- 9/2013-present **Stanford University** **CA, US**
- Ph.D. Candidate in Electrical Engineering; GPA: 4.12/4.3
  - Advisor: Leonidas J. Guibas
- 9/2009-7/2013 **Tsinghua University (THU)** **Beijing, China**
- B.E. in Electronic Engineering; GPA: 3.93/4.0, rank: 4/238
  - Advisor: Jiangtao (Gene) Wen

## HONORS AND AWARDS

- Hong Seh and Vivian W. M. Lim Fellowship (Stanford University, 2013-2014)
- Excellent Undergraduate Award, awarded to the top 2% students (Tsinghua University, 2013)
- Nanxiang Jiang Fellowship, awarded to the top 0.3% students (Tsinghua University, 2012)
- Microchip Technology Scholarship (Microchip Technology Inc, 2012)
- The Samsung Scholarship, awarded to the top 5% students (Tsinghua University, 2011)
- San Chang Scholarship, awarded to the top 10% students (Tsinghua University, 2010)

## PROFESSIONAL EXPERIENCE

**Stanford University, Geometric Computing Lab** **CA, US**

9/2013-present Ph.D. student, advised by Leonidas J. Guibas

### ShapeNet

- Established ShapeNet: a large-scale, semantically enriched 3D model dataset, to boost “big data” fashion in computer graphics community and also benefit the processing and analysis of other streams of data, such as images and videos.
- Developed a framework to actively propagate crowdsourced annotations (point level, part level and object level) in large shape networks.

### 3D Deep Learning

- Introduced Synchronized Spectral CNN for semantic 3D shape segmentation, which regards 3D shapes as graphs and allows parameter sharing among different shape graphs under a spectral CNN framework.
- Developed PointNet++, a 3D deep learning framework which works with 3D pointclouds, to tackle various 3D understanding tasks involving 3D recognition, segmentation, etc.

### Object Functionality Understanding via Part Analysis

- Segmenting 3D shape parts hierarchically and consistently via leveraging noisy online tags.
- Analyzing part mobility of 3D shapes for interaction purpose.

**Baidu Research USA**

7/2017-9/2017 Research Intern, advised by Yi Yang, Wei Xu

**CA, US**

### Landmark to Construct Topological Map for Indoor Navigation

**Adobe Systems Incorporated, Emerging Graphics Group**

6/2016-9/2016 Research Intern, advised by Ersin Yumer

**CA, US**

### Hierarchical Shape Structure and Labeling from Scene Graphs in the Wild

- Proposed a method for extracting consistent structure from scene graphs that accompany 3D models in public repositories.
- Formulated a joint optimization problem where the objective is to cluster and label nodes in all scene graphs and build a consistent hierarchy based on available tags and hierarchical relationships.
- Conducted hierarchical segmentation for 3D shapes by learning from these cleaned up scene graphs

6/2015-9/2015 Research Intern, advised by Duygu Ceylan

**Establishing Image Correspondences Across a Large Image Collection**

**University of Southern California, Computer Vision Laboratory**

**CA, US**

6/2012-10/2012 Research Intern, advised by Gerard Medioni

**Probabilistic Tensor Voting**

- Developed a probabilistic tensor voting framework, to robustly solve the multiple structures estimation problem in the presence of noisy inliers and outliers in non-parametric cases. This setting is very challenging due to the limited prior knowledge and the extensive noise and my approach achieved the state-of-the-art performance on synthesized dataset.

**Megvii Inc., Face++ Group**

**Beijing, China**

9/2012-2/2013 Research Intern, advised by Hao Li

**Face Clone**

- Developed an integrated application which could easily build a detailed realistic digital clone of the user's face in 3D with Kinect input and then benefit animation, appearance manipulation, shape analysis.

**Tsinghua University, Institute of Human-Computer Interaction and Media Integration**

**Beijing, China**

9/2011-6/2013 Research Assistant, advised by Jiangtao (Gene) Wen

**Image Super-Resolution via Analysis Sparse Prior**

- Proposed a new algorithm for a single image super resolution using the analysis sparse prior in the lab color space, which outperforms other existing state-of-the-art methods.

**Video Enhancement in Challenging Lighting Conditions**

- Worked on video enhancement in challenging lighting conditions. Speeded up the core algorithm by over 10 times to embrace applications with hard real time requirements and also improved the low lighting enhancement algorithm to figure out the color cast problem.

**PUBLICATIONS**

- Cewu Lu, Hao Su, Yonglu Li, Yongyi Lu, **Li Yi**, Chi-Keung Tang, Leonidas Guibas. Beyond Holistic Object Recognition: Enriching Image Understanding with Part States. CVPR 2018
- **Li Yi**, Hao Su, Lin Shao, Manolis Savva and others. Large-Scale 3D Shape Reconstruction and Segmentation from ShapeNet Core55. arXiv:1710.06104 [cs.CV], Oct 2017
- Charles Qi, **Li Yi**, Hao Su, Leonidas Guibas. PointNet++: Deep Hierarchical Feature Learning on Point Sets in a Metric Space. NIPS 2017
- **Li Yi**, Ersin Yumer, Vladimir Kim, Aaron Hertzmann, Hao Su, Leonidas Guibas. Learning Hierarchical Shape Segmentation and Labeling from Online Repositories. SIGGRAPH 2017
- **Li Yi**, Hao Su, Xingwen Guo, Leonidas Guibas. SyncSpecCNN: Synchronized Spectral CNN for 3D Shape Segmentation. CVPR 2017 (spotlight)
- **Li Yi**, Vladimir Kim, Duygu Ceylan, I-Chao Shen, Mengyuan Yan, Hao Su, Cewu Lu, Qixing Huang, Alla Sheffer, Leonidas J. Guibas. A Scalable Active Framework for Accurately Labeling 3D Shape Collections. Siggraph Asia 2016.
- Angel X. Chang, Thomas Funkhouser, Leonidas Guibas, Pat Hanrahan, Qixing Huang, Zimo Li, Silvio Savarese, Manolis Savva, Shuran Song, Hao Su, Jianxiong Xiao, **Li Yi**, and Fisher Yu. ShapeNet: An Information-Rich 3D Model Repository. arXiv:1512.03012
- Hao Su, Fan Wang, **Li Yi**, Leonidas J. Guibas. 3D-Assisted Image Feature Synthesis for Novel Views of an Object. ICCV 2015
- Qiang Ning, Kan Chen, **Li Yi**, Chuchu Fan, Yao Lu and Jiangtao Wen, Fellow, IEEE. Image Super-Resolution via Analysis Sparse Prior. In IEEE Signal Processing Letters, 2013.

**TECHNICAL SKILLS**

- Programming: C/C++ (proficient), Python (proficient), MATLAB (expert), SQL (proficient) Java (prior experience), HTML/CSS/Javascript (prior experience), R (prior experience)
- Languages: Chinese (native), English (fluent), Japanese (beginner)