

Shuran Song

Curriculum Vitae

Department of Computer Science

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Education

- 2013 – Present **Ph.D. Candidate in Computer Science, Princeton University.**
- 2013 **B.Eng. in Computer Engineering, Hong Kong University of Science and Technology.**
- 2012 **Non-degree Exchange Student, Georgia Institute of Technology.**

Distinctions

- 2017 Wallace Fellowship – the highest award in the School of Engineering and Applied Science at Princeton, awarded annually to the top 4 graduate students.
- 2017 School of Engineering and Applied Science Award for Excellence
- 2017 1st Place Winners (Stow Task) at the worldwide Amazon Robotics Challenge 2017
- 2016 Siebel Scholar, Class of 2017 – awarded annually for academic excellence and demonstrated leadership to over 90 top students from the world’s leading graduate schools
- 2016 3rd and 4th Place Winners at at the worldwide Amazon Picking Challenge 2016
- 2016 Qualcomm Innovation Fellowship Finalists
- 2015 Facebook Ph.D. Fellowship
- 2015 Princeton Innovation’s 25 Under 25
- 2013 Princeton Ph.D. Student Fellowship
- 2013 HKUST Academic Achievement Medal
- 2012 Shanda Scholarship
- 2011 Regional Champion (Hong Kong) of Asia-Pacific Robot Contest 2011
- 2009 – 2012 Electronic & Computer Engineering Department Scholarship
- 2009 – 2012 HKUST Dean’s List (all semesters)

Publications

- 2018 Andy Zeng, **Shuran Song**, Kuan-Ting Yu, Elliott Donlon, Francois R. Hogan, Maria Bauza, Daolin Ma, Orion Taylor, Melody Liu, Eudald Romo, Nima Fazeli, Ferran Alet, Nikhil Chavan Daffe, Rachel Holladay, Isabella Morona, Prem Qu Nair, Druck Green, Ian Taylor, Weber Liu, Thomas Funkhouser, Alberto Rodriguez
Robotic Pick-and-Place of Novel Objects in Clutter with Multi-Affordance Grasping and Cross-Domain Image Matching.
International Conference on Robotics and Automation (**ICRA**), 2018. [📄 Project Webpage](#)
 - 2017 **Shuran Song**, Fisher Yu, Andy Zeng, Angel X. Chang, Manolis Savva, Thomas Funkhouser.
Semantic Scene Completion from a Single Depth Image.
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2017.
Oral presentation [📄 Project Webpage](#)
- Andy Zeng, **Shuran Song**, Matthias Niessner, Matthew Fisher, Jianxiong Xiao, Thomas Funkhouser
3DMatch: Learning Local Geometric Descriptors from RGB-D Reconstructions.
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2017.
Oral presentation [📄 Project Webpage](#)

Yinda Zhang*, **Shuran Song***, Ersin Yumer, Manolis Savva, Joon-Young Lee, Hailin Jin, Thomas Funkhouser
Physically-Based Rendering for Indoor Scene Understanding Using Convolutional Neural Networks.
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2017.
* indicates equal contribution. [Project Webpage](#)

Andy Zeng, Kuan-Ting Yu, **Shuran Song**, Daniel Suo, Ed Walker Jr., Alberto Rodriguez and Jianxiong Xiao
Multi-view Self-supervised Deep Learning for 6D Pose Estimation in the Amazon Picking Challenge
International Conference on Robotics and Automation (**ICRA**), 2017. [Project Webpage](#)

Angel X. Chang, Angela Dai, Thomas Funkhouser, Maciej Halber, Matthias Niessner, Manolis Savva, **Shuran Song**, Andy Zeng, Yinda Zhang
Matterport3D: Learning from RGB-D Data in Indoor Environments.
IEEE International Conference on 3D Vision (3DV) (**3DV**), 2017. [Project Webpage](#)

2016 **Shuran Song**, Jianxiong Xiao.
Deep Sliding Shapes for Amodal 3D Object Detection in RGB-D Images.
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2016.
Spotlight presentation [Project Webpage](#)

2015 **Shuran Song**, Samuel P. Lichtenberg, Jianxiong Xiao.
SUN RGB-D: A RGB-D Scene Understanding Benchmark Suite.
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2015.
Oral presentation [Project Webpage](#)

Zhirong Wu, **Shuran Song**, Aditya Khosla, Fisher Yu, Linguang Zhang, Xiaoou Tang, Jianxiong Xiao.
3D ShapeNets: A Deep Representation for Volumetric Shapes.
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2015.
Oral presentation [Project Webpage](#)

2014 **Shuran Song**, Jianxiong Xiao.
Sliding Shapes for 3D Object Detection in Depth Images.
Proceedings of the 13th European Conference on Computer Vision (**ECCV**), 2014.
Oral presentation [Project Webpage](#)

Yinda Zhang, **Shuran Song**, Ping Tan, Jianxiong Xiao.
PanoContext: A Whole-room 3D Context Model for Panoramic Scene Understanding.
Proceedings of the 13th European Conference on Computer Vision (**ECCV**), 2014.
Oral presentation [Project Webpage](#)

2013 **Shuran Song**, Jianxiong Xiao.
Tracking Revisited using RGBD Camera: Unified Benchmark and Baselines.
Proceedings of 14th IEEE International Conference on Computer Vision (**ICCV**), 2013. [Project Webpage](#)

Manuscripts

Shuran Song, Andy Zeng, Angel X. Chang, Manolis Savva, Silvio Savarese, Thomas Funkhouser.
Im2Pano3D: Extrapolating 360 Structure and Semantics Beyond the Field of View.
Under Review CVPR, 2018.

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, Fisher Yu
ShapeNet: An Information-Rich 3D Model Repository.
arXiv:1512.03012 [cs.CV] [Project Webpage](#)

Fisher Yu, Yinda Zhang, **Shuran Song**, Ari Seff, Jianxiong Xiao.
Construction of a Large-scale Image Dataset using Deep Learning with Humans in the Loop.
arXiv:1506.03365 [cs.CV] [Project Webpage](#)

Shuran Song, Linguang Zhang, Jianxiong Xiao.
Robot In a Room: Toward Perfect Object Recognition in Closed Environments.
arXiv:1507.02703 [cs.CV] [Project Webpage](#)

Academic Service

Organizer CVPR Tutorial: 3D Deep Learning with Marvin 2016
Organizer Large-scale Scene Understanding Challenge Workshop (**LSUN**) 2015-2016.
Committee Scene Understanding Workshop (**SUNw**) 2014.
Reviewer PAMI, IJCV, Siggraph Asia, ECCV, ICCV, CVPR, ICRA, 3DV, CVIU, IVC, Multimedia, Neurocomputing

Invited Talks

Nov 2017 3D Amodal Scene Understanding for Robotics, *Google X, Google Brain Research, MTV*
Nov 2017 Predicting Semantics and 3D Structure Beyond the Field of View, *Stanford Vision Seminar*
Oct 2017 A Big-3D-Data Approach to Visual Scene Understanding, *Facebook Research, Menlo Park*
July 2017 Semantic Scene Completion from a Single Depth Image, *CVPR* [Video](#)
Aug 2016 Lessons Learned from the Amazon Robotics Challenge, *Princeton University*
July 2016 3D Deep Learning for Amodal 3D Object Detection *CVPR Tutorial on 3D Deep Learning*
July 2016 Deep Sliding Shapes for Amodal 3D Object Detection in RGB-D Images. *CVPR* [Video](#)
April 2016 Self-Supervised Deep Learning for Object Pose Estimation, *Princeton University*
Aug 2015 Towards Perfect Object Recognition in Closed and Structured Environments, *Microsoft Research, Redmond*
Aug 2015 3D Scene Understanding with Large-Scale Synthetic Scene Datasets, *Stanford University*
June 2015 SUN RGB-D: A RGB-D Scene Understanding Benchmark Suite, *CVPR* [Video](#)
March 2015 Teaching Computers to See the Way We Do, *Princeton 25 under 25*
Sep 2014 Sliding Shapes for 3D Object Detection in Depth Images, *ECCV* [Video](#)
Aug 2014 A Big-3D-Data Approach to Visual Scene Understanding, *Microsoft Research Asia, Tsinghua University, National Laboratory of Pattern Recognition (NLPR), and Chinese Academy of Sciences*

Press Coverage

Team MIT-Princeton at the Amazon Robotics Challenge 2017 featured on Amazon News [link](#),
EPR Retail News [link](#), Princeton Engineering News [link](#), Machine Design [link](#).

Semantic Scene Completion featured on the Princeton Engineering news. [link](#)

Semantic Scene Completion and 3DMatch featured on Two Minute Papers [link](#)

Princeton Engineering Department News [link](#)

Discovery: Research at Princeton [link](#) [Yearly Magazine, Page 30-31]

Princeton Computer Science Department News [link](#)

Teaching

Princeton COS429 Computer Vision – Teaching Assistant and Guest Lecturer
Princeton COS126 General Computer Science – Teaching Assistant
HKUST ELEC125 Introduction to Electro-Robot Design – Teaching Assistant
HKUST ELEC121 A System View of Communications: from Signals to Packets – Teaching Assistant