

LIU, SHIKUN

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RESEARCH INTERESTS Vision, Perception & Cognition, Learning to X, Generative Models, Unsupervised Learning, Multi-Task & Transfer Learning, NeuroEvolution, Reinforcement Learning & Robotics

EDUCATION **Imperial College London** (*with Distinction*) Oct. 2017 - Sept. 2018

Advisor: Prof. Andrew Davison FEng

Thesis: Universal Representations: Towards Multi-Task Learning & Beyond

- Master of Research in Advanced Computing

The Pennsylvania State University (*with Honors*) Aug. 2013 - May. 2017

Advisor: Prof. C. Lee Giles

Thesis: Variational Generative Models

- Bachelor of Science in Mathematics
- Bachelor of Science in Electrical Engineering

EXPERIENCE **Research Assistant, Imperial College London** | *London, United Kingdom*

• *Dyson Robotics Lab*

Oct. 2017 - present.

- Working on numerous projects in multi-task and auxiliary learning.

Research Intern, Tencent | *Shanghai, China*

• *Medical Analysis Group, YouTu Lab*

Jul. 2017 - Sept. 2017

- Contributed to the Tencent Medical AI project.
- Proposed a multi-resolution 3D feature pyramid network based on attention, a patented design for early-stage lung cancer detection.
- Improved diabetic retinopathy screening with attention visualisation.

Research Assistant, The Pennsylvania State University | *State College, Pennsylvania*

• *The Intelligent Information Systems Research Lab*

Jan. 2017 - May. 2017

- Proposed a hierarchical latent-variable model, the Variational Shape Learner, for general voxelized 3D shape understanding.
- Achieved state-of-the-art unsupervised ModelNet dataset classification and significantly improved the quality of shape generation and single image 3D model retrieval.

Research Intern, Carnegie Mellon University | *Pittsburgh, Pennsylvania*

• *CI2CV Computer Vision Lab, The Robotics Institute*

May. 2016 - Nov. 2016

- Designed a deep generative architecture based on convolutional neural network and variational auto-encoder for pose-aware image reconstruction.

PUBLICATIONS [1] **Shikun Liu**, Edward Johns, and Andrew J. Davison “End-to-End Multi-Task Learning with Attention.” *ArXiv PrePrint*, 2018.

[2] **Shikun Liu**, C. Lee Giles, and Alexander G. Ororbia II. “Learning A Hierarchical Latent-Variable Model of 3D Shapes.” *International Conference on 3D Vision (3DV)*, 2018.

TECHNICAL
PROFICIENCY

Programming

C/C++, Python*, Haskell, HTML/CSS*

Software / Framework

Tensorflow*, PyTorch*, OpenCV*, MATLAB*, Mathematica, L^AT_EX*

(*) implies a sufficient level of expertise.

HONORS &
AWARDS

Schreyer Honors College Summer Research Grant

May. 2016

Penn State Math Department Research Grant

Oct. 2013

Shanghai Intel and Engineering Fair - Best Paper Award

Jan. 2013

Shing-Tung Yau Mathematics Awards - Second Prize

Sept. 2012