

Shichao Li

Curriculum Vitae

HKUST, Clear Water Bay
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"All models are wrong but some are useful" - George E. P. Box

Education

- 2017–2022 **Ph.D. in Computer Science and Engineering**, *The Hong Kong University of Science and Technology (HKUST)*, Kowloon, Hong Kong.
Program Advisor: Professor Kwang-Ting Tim Cheng
Research Interest: Computer Vision, Machine Learning, 3D Perception, *GPA – 3.9/4.0*
- 2013–2017 **Bachelor of Engineering**, *Chu Kochen Honors College, Zhejiang University (ZJU)*, Hangzhou.
Major: Information Engineering, *GPA – 4.0/4.0*

Research Experience

- Jan–Jun 2021 **Coarse-to-fine Stereo 3D Object Detection**, *HKUST*
- May–Nov 2020 **Monocular 3D Object Detection with Intermediate Geometric Representation**.
HKUST
 - Proposed a novel approach hitting a new record (ranked 1_{st} at the time of submission) for RGB-based 3D vehicle pose estimation on KITTI benchmark through learning geometry-aware representation
 - Proposed a new loss function by preserving projective invariants for self-supervised representation learning.
- Jun–Nov 2019 **Monocular 3D Human Pose Estimation with Synthetic Supervision**.
HKUST
 - Improved generalization ability of 2D-to-3D deep neural networks using synthetic data.
 - Proposed a novel evolution framework for data augmentation and a new model architecture, both contributed to achieving state-of-the-art performance.
- 2018–Jun 2019 **HKUST-Naver Collaborate Research Project on Mobile Computer Vision**, *HKUST*.
HKUST
 - Developed a facial image analysis system on Windows and Android platforms consisting of detection, landmark localization, head pose estimation and graphics rendering modules.
 - Achieved state-of-the-art accuracy on facial age estimation with only one quarter of memory usage by utilizing residual learning for deep neural decision forest.
- 2016–2017 **Undergraduate Thesis: Numerical Algorithm for Physics-based Simulation**.
ZJU
 - Developed finite-difference based numerical solver to solve coupled partial differential equations.
- 2015–2016 **Undergraduate Student Research Training Program (SRTP)**.
ZJU
 - Apply transformation optics theory in the domain of energy transfer and conducted computational simulation.

Internship

- Jan–Apr 2020 **SenseTime Autonomous Driving and Sensing Group**, *Shanghai*.
 - Develop 3D object detection and 6DoF pose estimation system applicable for autonomous visual perception.
- Jul–Aug 2016 **Zhaowei Liu Research Group**, *UCSD*, California.
Advisor: Prof. Zhaowei Liu
 - Set up a lightsheet microscopy system combining illumination and imaging with a single objective lens.
 - Performed image processing to recover 3D distribution of fluorescent beads.

Publications

- 2022 **Shichao Li**, Zechun Liu, Zhiqiang Shen and Kwang-Ting Cheng. Stereo Neural Vernier Caliper, under review.

- 2021 **Shichao Li** and Kwang-Ting Cheng. Exploring intermediate representation for monocular vehicle pose estimation, *The IEEE Conference on Computer Vision and Pattern Recognition (CVPR)* [[Github](#)] [[Link](#)]
- 2021 Zechun Liu, Zhiqiang Shen, **Shichao Li**, Koen Helwegen, Dong Huang and Kwang-Ting Cheng. How do Adam and training strategies help BNNs optimization, *International Conference on Machine Learning (ICML)*
- 2020 **Shichao Li**, Lei Ke, Kevin Pratama, Yu-Wing Tai, Chi-Keung Tang and Kwang-Ting Cheng. Cascaded deep monocular 3D human pose estimation with evolutionary training data, *The IEEE Conference on Computer Vision and Pattern Recognition (CVPR)* [[Oral](#)] [[Github](#)] [[Link](#)]
- 2020 Lei Ke, **Shichao Li**, Yanan Sun, Yu-Wing Tai and Chi-Keung Tang. GSNet: Joint vehicle pose and shape reconstruction with geometrical and scene-aware supervision, *European Conference on Computer Vision (ECCV)* [[Github](#)] [[Link](#)]
- 2019 **Shichao Li** and Kwang-Ting Cheng. Visualizing the decision-making process in deep neural decision forest, *The IEEE Conference on Computer Vision and Pattern Recognition Workshops* [[Github](#)] [[Link](#)]
- 2019 **Shichao Li** and Kwang-Ting Cheng. Facial age estimation by deep residual decision making, Project Technical Report [[Github](#)] [[Link](#)]
- 2017 **Shichao Li**, Fei Sun, Di An and Sailing He. Increasing efficiency of a wireless energy transfer system by spatial translational transformation, *IEEE Transactions on Power Electronics* [[Link](#)]
- 2017 **Shichao Li**, Yandong Luo, Wenchao Chen and Wenyan Yin. Fully coupled multiphysics simulation of crosstalk effect in bipolar resistive random access memory, *IEEE Transactions on Electron Devices* [[Link](#)]
- 2017 Fei Sun, **Shichao Li** and Sailing He, Translational illusion of acoustic sources by transformation acoustics, *Journal of Acoustical Society of America* [[Link](#)]

Awards

- 2020 *SENG* (School of Engineering) Academic Award for Continuing PhD Students
- 2017-2021 Hong Kong PhD Fellowship
- 2017 ZJU Outstanding Undergraduate Thesis Award
- 2016 Honorable Mention in Mathematical Contest in Modeling (MCM)
- 2015 China National Scholarship (Top 2% in *Chu Kochen Honors College*)

Skills

Programming	C, C++, JAVA
Languages	PYTHON, MATLAB, JAVASCRIPT, LUA
Frameworks	(PY)TORCH, TENSORFLOW, CAFFE
Others	Android Mobile Development

Languages

Chinese	Mother tongue
English	Intermediate