

# Shichao Li

## Curriculum Vitae

HKUST, Clear Water Bay  
Kowloon, Hong Kong  
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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**,  
(expected) *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–3.9/4.3*
- 2013–2017 **Bachelor of Engineering**,  
*Chu Kochen (CKC) Honors College, Zhejiang University (ZJU)*, Hangzhou.  
Major: Information Engineering, *GPA–3.9/4.0 (91.3/100), Rank–4/174 in the CKC mixed class*

## Research Experience

- Jan–Jun 2021 **Coarse-to-fine Stereo 3D Object Detection.**  
*HKUST*
  - Propose a new instance-aware multi-resolutional approach for stereo 3D object detection with enhanced performance, flexibility and transferability.
- May–Nov 2020 **Monocular 3D Object Detection with Intermediate Geometric Representation.**  
*HKUST*
  - Proposed a novel approach hitting a new record (ranked *1<sub>st</sub>* 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 a finite-difference based numerical solver to solve coupled partial differential equations.
- 2015–2016 **Undergraduate Student Research Training Program (SRTP).**  
*ZJU*
  - Apply transformation optics theory for energy transfer and conduct a computational simulation.

## Internship

- Jan–Apr 2020 **SenseTime Autonomous Driving Group, Shanghai.**  
  - Conduct 3D object detection research for autonomous visual perception.
- Jul–Aug 2016 **Zhaowei Liu Research Group, UCSD, California.**  
Advisor: Prof. Zhaowei Liu
  - Build a lightsheet microscopy system combining illumination and imaging with a single objective lens.
  - Perform image processing to recover the 3D distribution of fluorescent beads.

## Publications

- 2022 **Shichao Li** and Kwang-Ting Cheng. Joint stereo 3D object detection and implicit surface reconstruction, under review. [[Link](#)]

- 2022 **Shichao Li**, Zechun Liu, Zhiqiang Shen and Kwang-Ting Cheng. Stereo Neural Vernier Caliper, *Thirty-Sixth AAAI Conference on Artificial Intelligence (AAAI-22)* [[Github](#)]
- 2021 **Shichao Li**, Zengqiang Yan, Hongyang 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)* [[Github](#)] [[Link](#)]
- 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 Second Prize in Zhongkong Cup ZJU Robot Competition
- 2016 Honorable Mention in Mathematical Contest in Modeling (MCM)
- 2015 China National Scholarship (Top 2% in *Chu Kochen Honors College*)

## Skills

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

## Languages

- Chinese Mother tongue
- English TOFEL iBT 110/120, GRE Verbal 160/170