

Minghao Guo

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Education

MIT <i>Ph.D. Student in CSAIL, Electrical Engineering and Computer Science</i>	MA, USA Aug. 2021 – Present
The Chinese University of Hong Kong <i>M.Phil. in Information Engineering</i>	Hong Kong, China Aug. 2019 – July 2021
Tsinghua University <i>B.Eng. in Automation</i> • Cumulative GPA: Top 15% of 163 students	Beijing, China Aug. 2014 – July 2018

Publication

Conference (* indicates equal contribution)

- [1] **Minghao Guo**, Veronika Thost, Samuel Song, Adithya Balachandran, Payel Das, Jie Chen, Wojciech Matusik, “Grammar-Induced Geometry for Data-Efficient Molecular Property Prediction,” in submission.
- [2] **Minghao Guo**, Veronika Thost, Beichen Li, Payel Das, Jie Chen, Wojciech Matusik, “Data-Efficient Graph Grammar Learning for Molecular Generation,” in *International Conference on Learning Representations (ICLR) 2022* (oral paper, acceptance rate 1.6%).
- [3] Liane Makatura, **Minghao Guo**, Adriana Schulz, Justin Solomon, Wojciech Matusik, “Pareto Gamuts: Exploring Optimal Designs Across Varying Contexts,” in *SIGGRAPH 2021 (ACM Transactions on Graphics)*.
- [4] Zhaoyang Lyu, **Minghao Guo**, Tong Wu, Guodong Xu, Kehuan Zhang, Dahua Lin, “Towards Evaluating and Training Verifiably Robust Neural Networks,” in *Conference on Computer Vision and Pattern Recognition (CVPR) 2021*.
- [5] **Minghao Guo***, Yuzhe Yang*, Rui Xu, Ziwei Liu, Dahua Lin, “When NAS Meets Robustness: In Search of Robust Architectures against Adversarial Attacks,” in *Conference on Computer Vision and Pattern Recognition (CVPR) 2020*.
- [6] Chen Lin*, **Minghao Guo***, Chuming Li, Xin Yuan, Wei Wu, Junjie Yan, Dahua Lin, Wanli Ouyang, “Online Hyper-parameter Learning for Auto-Augmentation Strategy,” in *International Conference on Computer Vision (ICCV) 2019*.
- [7] Chuming Li, Xin Yuan, Chen Lin, **Minghao Guo**, Wei Wu, Junjie Yan, Wanli Ouyang, “AM-LFS: AutoML for Loss Function Search,” in *International Conference on Computer Vision (ICCV) 2019*.
- [8] **Minghao Guo**, Zhao Zhong, Wei Wu, Dahua Lin, Junjie Yan, “IRLAS: Inverse Reinforcement Learning for Architecture Search,” in *Conference on Computer Vision and Pattern Recognition (CVPR) 2019*.
- [9] **Minghao Guo**, Jiwen Lu, Jie Zhou, “Dual-Agent Deep Reinforcement Learning for Deformable Face Tracking,” in *European Conference on Computer Vision (ECCV) 2018* (oral paper, acceptance rate 2.4%).
- [10] Haitian Zheng, **Minghao Guo**, Haoqian Wang, Yebin Liu, Lu Fang, “Reference-based Light Field Super-resolution Using a Hybrid Imaging System,” in *International Conference on Computer Vision Workshops (ICCVW) 2017*.

Journal

- [1] **Minghao Guo**, Liane Makatura, Wan Shou, Timothy Erps, Michael Foshey, Wojciech Matusik, “PolyGrammar: A Parametric Context Sensitive Grammar for Polymer Representation and Generation,” in *Advanced Science*.
- [2] Rui Xu, **Minghao Guo**, Jiaqi Wang, Xiaoxiao Li, Bolei Zhou, Chen Change Loy, “Texture Memory-Augmented Deep Patch-Based Image Inpainting,” in *Transactions on Image Processing (TIP)*.
- [3] Hao Liu, Jiwen Lu, **Minghao Guo**, Suping Wu, Jie Zhou, “Learning Reasoning-Decision Networks for Robust Face Alignment,” *Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*.

Experience

- Computational Design & Fabrication Group, CSAIL MIT** Aug. 2021 – Present
PhD Student supervised by Prof. Wojciech Matusik
- Worked on computational design, data-driven material discovery, and physics-based simulation.
- MultiMedia Lab (MMLab), The Chinese University of Hong Kong** Aug. 2019 – July 2021
M.Phil. Student supervised by Prof. Dahua Lin and Prof. Ziwei Liu
- Worked on neural architecture search, automated machine learning, and network adversarial robustness.
- Fundamental Research Group, SenseTime** Aug. 2018 – July 2019
Research Intern of Model Team
- Worked on neural architecture search and automated machine learning.
- Intelligent Vision Group (IVG), Tsinghua University** Mar. 2017 – July 2018
Advised by Prof. Jiwen Lu
- Undergraduate thesis; worked on face alignment, facial landmark detection, and tracking.
- Broadband Network & Digital Media Lab, Tsinghua University** Aug. 2016 – Feb. 2017
Advised by Prof. Yebin Liu
- Worked on gigapixel video and light field imaging.

Teaching

- Department of Information Engineering, The Chinese University of Hong Kong:
- Teaching Assistant: Electronic Circuit Design Laboratory* Term 1, 2019-2020
- Teaching Assistant: Linear Algebra and Vector Calculus for Engineers* Term 2, 2019-2020
- Teaching Assistant: Electronic Circuit Design Laboratory* Term 1, 2020-2021

Technical Skills

- Programming:** Python, C/C++, TaiChi, \LaTeX , CUDA, MATLAB, C#, PyTorch, Tensorflow, Caffe
- Languages:** English (proficient), Mandarin Chinese (native)