Shihua Huang

Curriculum Vitae

Department of Computing
The Hong Kong Polytechnic University
Hong Kong, China
☏ *+(86) 133-7743-9253*
✉ *shihuahuang95@gmail.com*
🖰 *http://www.shihuahuang.cn*

Research Interests

Representation Learning

Neural Architecture Search

Generative Adversarial Networks

Education

2014 – 2018 **Bachelor of Engineering**, *Department of Computer Science and Technology*, Northeastern University, China. GPA: 84/100 (3.35/4).
Thesis: *Learning to jointly detect and segment objets with the help of local top-down modules*

2018 **Visiting Student**, *Department of Computer Science and Engineering*, Southern University of Science and Technology, China.
Projects: *Image-to-image translation and evolutionary multi-objective optimization with GANs*

2021 – now **Doctor of Philosophy**, *Department of Computing*, The Hong Kong Polytechnic University, Hong Kong.
Supervisor: Kaychen Tan

Working Experiences

2018 – 2021 **Research Assistant**, *Department of Computer Science and Engineering*, Southern University of Science and Technology, China.
Research Grants:
- 2020-2024: *Deep Learning Based Aerofoil Design*, **Key Member**, *RMB* $3,200,000$, *Ministry of Industry and Information Technology, China*
- 2020-2022: *Evolutionary Computation Based Deep Neural Architecture Search for Microchips*, **Key Member**, *RMB* $1,280,000$, *Huawei Hisilicon, China*
- 2020-2023: *Cell-Based Deep Neural Networks Architecture Search Using Evolutionary Multiobjective Optimization*, **Key Member**, *RMB* $230,000$, *National Natural Science Foundation of China, China*
- 2020-2023: *Computationally Expensive Large-Scale Multi-Objective Optimization Driven by Generative Learning*, **Key Member**, *RMB* $160,000$, *National Natural Science Foundation of China, China*

Publications

Refereed Journal Articles

TCYB Cheng He, **Shihua Huang**, Ran Cheng, Kay Chen Tan, and Yaochu Jin. Evolutionary Multi-Objective Optimization Driven by Generative Adversarial Networks (GANs). IEEE Transactions on Cybernetics, 2020 (in press). (SCI IF=11.079)

SWEVO Cheng He, Hao Tan, **Shihua Huang**, and Ran Cheng. Efficient Evolutionary Neural Architecture Search by Modular Inheritable Crossover. Elsevier Swarm and Evolutionary Computation, 2021 (in press). (SCI IF=7.177)

TNNLS Hao Tan, Ran Cheng, **Shihua Huang**, Cheng He, Changxiao Qiu, Fan Yang, and Ping Luo. RelativeNAS: Relative Neural Architecture Search via Slow-Fast Learning. IEEE Transactions on Neural Network Learning Systems, 2021 (early access). (SCI IF=10.451)

Conference Proceedings

PRCV 2018   **Shihua Huang**, Lu Wang, Peiyu Yang, and Qingxu Deng. A local top-down module for object detection with multi-scale features. Chinese Conference on Pattern Recognition and Computer Vision, Guangzhou, China, 2018.

CVPRW 2020   Seungjun Nah, Sanghyun Son, Radu Timofte, Mu Kyoung Lee, **Shihua Huang**, et. al. NTIRE 2020 Challenge on Image and Video Deblurring. IEEE CVPR workshop, 2020.

ICCV 2021   **Shihua Huang**, Zhichao Lu, Ran Cheng, and Cheng He. FaPN: Feature-aligned Pyramid Network for Dense Image Prediction. IEEE ICCV, 2021.

Under Review

Shihua Huang and Lu Wang. IvaNet: Learning to Jointly Detect and Segment Objets with the Help of Local Top-Down Modules, 2019. arXiv preprint, arXiv:1903.07360.

Shihua Huang, Cheng He, and Ran Cheng, Multimodal Image-to-Image Translation via a Single Generative Adversarial Network, 2019.

Zhichao Lu, Ran Cheng, **Shihua Huang**, Haoming Zhang, Changxiao Qiu, and Fan Yang. Towards Real-Time Semantic Segmentation - A Surrogate-Assisted Multiobjective Approach, 2021.

Patents

Liangbin Xie, Guofeng Zhang, **Shihua Huang**, Lu Wang, and Qingxu Deng. A Safety Helmet Wearing Detection method Based on Deep Convolutional Neural Network. China patent, CN109034215A, filed 7/2018, issued 12/2018.

Ran Cheng, Yuli Zhang, Cheng He, **Shihua Huang**. A Method, Device, System, Terminal for Fruits Sorting. China patent, CN109740681A, filed 1/2019, issued 5/2019.

Ran Cheng, Yuli Zhang, Cheng He, **Shihua Huang**. A Method, Device, System, Terminal for Things Sorting. China patent, CN109894383A, filed 2/2019, issued 6/2019.

Competitions

World

MOT2016: Multiple Objects Tracking on Private Detector, **29**/69

MOT2017: Pedestrian Detection, **5**/44

IJCAI2019 workshop: IJCAI-19 Alibaba Adversarial AI Challenge on Defense, **1**/2519.

CVPR2020 workshop: NTIRE 2020 Challenge on Video Deblurring, **1**/7.

National

5th NAVINFO Cup on AutoDriving, **1**/49, 2019; First NAIC Challenge on AI + 4K + HDR, 29/212, 2019; Data Intelligence of Chongqing Challenge on Intelligent Algorithm, **5**/2990, 2020.

Professional Services

Reviewer of Journals

IEEE Transactions on Multimedia

IEEE Access

Applied Soft Computing

Complex & Intelligent Systems

Undergraduate Supervision

Xiaodian Zheng (2020), Yihui Tu (2020), Jie Lin (2019)

Awards

Three Academic Excellence Scholarships (2015/2016/2017)

Professional skills

Programming:	Python, C/C++
OS:	MacOS, Microsoft Windows, Linux
Scientific:	MATLAB, PyTorch
Typography:	LaTeX, Microsoft Office

Languages

Chinese	Cantonese (Native), Mandarin (Native)
English	Fluent