Shihua Huang

Curriculum Vitae

Department of Computer Science
Southern University of Science and Technology
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Research Interests

Representation Learning

Evolutionary Machine Learning

Computer Vision

Education and Work Experience

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

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

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*

2021 – 2022 **Doctor of Philosophy**, *Department of Computing*, Hong Kong Polytechnic University, Hong Kong, China.

Supervisor: Prof. Kay Chen Tan and Prof. Ran Cheng

2022 – now **Doctor of Philosophy**, *Department of Computer Science and Engineering*, Michigan State University, East Lansing, USA.

Supervisor: Prof. Kalyanmoy Deb and Prof. Vishnu Boddeti

Publications

Refereed Journal Articles

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)

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)

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)

Conference Proceedings

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

Technical Report

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.

Under Review

Shihua Huang, Cheng He, and Ran Cheng, Multimodal Image-to-Image Translation via a Single Generative Adversarial Network. IEEE Transactions on Artificial Intelligence, 2021.

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

MICCAI2021 workshop: GAMMA 2021, **6**/566.

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

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

MOT2017 challenge: Pedestrian Detection, **9**/22

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

National

5th NAVINFO Cup on AutoDriving, **1**/49, 2019; First NAIC Challenge on AI + 4K + HDR, **38**/212, 2019; Data Intelligence of Chongqing Challenge on Intelligent Algorithm, **5**/2990, 2020.

Professional Services

Reviewer of Journals

IEEE	Transactions on Multimedia, Transactions on Cognitive and Developmental Systems, and Access
Elsevier	Applied Soft Computing
Springer	Complex & Intelligent Systems

Undergraduate Supervision

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

Awards

Northeastern University 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