

Shihua Huang

Curriculum Vitae

Department of Computer Science and Engineering
Michigan State University
East Lansing, MI, USA
☎ + (86) 133-7743-9253 or (+1) 517-348-4152
✉ shihuahuang95@gmail.com
🌐 <http://www.shihuahuang.cn>

Research Interests

Representation Learning; Robust Architecture Design; Evolutionary Computation.

Education and Work Experience

- 2014 – 2018 **Bachelor of Engineering**, *Department of Computer Science and Technology*, Northeastern University, Shenyang, China. (Supervisor: Prof. Lu Wang).
Thesis: *Learning to jointly detect and segment objects 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, Shenzhen, China.
Responsibilities: Neural architecture search; Dense image prediction; Generative adversarial networks.
- 2021 – 2022 **Doctor of Philosophy**, *Department of Computing*, Hong Kong Polytechnic University, Hong Kong, China.
Supervisor: Prof. Kay Chen Tan (IEEE Fellow)
- 2022 – now **Doctor of Philosophy**, *Department of Computer Science and Engineering*, Michigan State University, East Lansing, MI, USA.
Supervisor: Prof. Kalyanmoy Deb (ACM and IEEE Fellow) and Prof. Vishnu Boddeti

Publications (* work equally)

Refereed Journal Articles

- TAI2022 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*, 2022.
- TAI2022 **Shihua Huang**, Cheng He, and Ran Cheng, Multimodal Image-to-Image Translation via a Single Generative Adversarial Network. *IEEE Transactions on Artificial Intelligence*, 2022.
- TNNLS2021 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. (SCI IF=10.451)
- SWEVO2021 Cheng He, Hao Tan, **Shihua Huang**, and Ran Cheng. Efficient Evolutionary Neural Architecture Search by Modular Inheritable Crossover. *Elsevier Swarm and Evolutionary Computation*, 2021. (SCI IF=7.177)
- TCYB2020 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. (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.

Under Review

- arXiv2022 **Shihua Huang**, Zhichao Lu, Kalyanmoy Deb, and Vishnu Boddeti. Revisiting Residual Networks for Adversarial Robustness: An Architectural Perspective. arXiv:2212.110055
- TITS2022 Zhichao Lu*, **Shihua Huang***, Ran Cheng, Kaychen Tan, Changxiao Qiu, and Fan Yang. Modularized and Automated Design of Feature Pyramid Networks for Real-time Semantic Segmentation. IEEE Transactions on Intelligent Transportation Systems, 2022.
- MIA2022 Junde Wu, Huihui Fang, Huazhu Fu, Fengbin Lin, **Shihua Huang**, et. al. Gamma challenge: glaucoma grading from multi-modality images. Elsevier Medical Image Analysis, 2022.

Technical Report

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

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 Image Processing, Transactions on Multimedia, Transactions on Cognitive and Developmental Systems, and Transactions on Neural Network Learning System
- Elsevier Applied Soft Computing
- Springer Complex & Intelligent Systems

Awards

Northeastern University Academic Excellence Scholarships (2015/2016/2017)

Professional skills

Programming: Python, C/C++

OS: MacOS, Microsoft Windows, Linux

Scientific: MATLAB, PyTorch

Typography: L^AT_EX, Microsoft Office

Languages

Chinese Cantonese (Native), Mandarin (Native)

English Fluent