

# Zilong Huang

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## EDUCATION

### Huazhong University of Science and Technology

*Ph.D student in Computer Vision and Machine Learning*

*Advisor: Wenyu Liu, Xinggang Wang*

**Wuhan, China**

2015.9–2020.12

### University of Illinois at Urbana-Champaign

*Joint-training Ph.D student in Computer Vision and Machine Learning*

*Advisor: Thomas Huang, Humphrey Shi*

**Urbana, USA**

2018.10–2019.10

### Huazhong University of Science and Technology

*B.S. in Electronic Information Engineering*

*Dian Group, Seed Class*

**Wuhan, China**

2011.9–2015.6

## RESEARCH INTERESTS

Deep learning, semantic segmentation in images/videos, image matting, weakly supervised learning

## EXPERIENCES

### Tencent

*Senior Researcher (GY-Lab)*

*Design efficient models for dense prediction tasks*

*Lead a team to participate some challenges/workshops of computer vision*

**Shanghai, China**

*Jan 2021 - Now*

### Alibaba Damo Academy

*Algorithm Intern (City Brain Group)*

*Mentor: Jianqiang Huang*

**Hangzhou, China**

*Jun 2020 - Nov 2020*

### Horizon Robotics

*Research Intern (Algorithm Platform)*

*Mentor: Lichao Huang*

**Beijing, China**

*Mar 2018 - Sep 2018*

### Microsoft Research Asia (MSRA)

*Research Intern (Internet Media group)*

*Mentor: Jingdong Wang, Chunyu Wang*

**Beijing, China**

*Mar 2016 - Oct 2016*

## PUBLICATIONS

**TopFormer: Token Pyramid Transformer for Mobile Semantic Segmentation. CVPR 2022.**

*Wenqiang Zhang\*, Zilong Huang\*, Gang Yu, Tao Chen, Guozhong Luo, Xinggang Wang, Wenyu Liu, Chunhua Shen.*

**Shuffle Transformer: Rethinking Spatial Shuffle for Vision Transformer. ArXiv 2021.**

*Zilong Huang, Youcheng Ben, Guozhong Luo, Pei Cheng, Gang Yu, Bin Fu.*

**Shuffle Transformer with Feature Alignment for Video Face Parsing. CVPRW 2021.**

*Rui Zhang, Yang Han, Zilong Huang, Pei Cheng, Guozhong Luo, Gang Yu, Bin Fu.*

*Ranked No. 1 of Short-video Face Parsing Track of The 3rd Person in Context (PIC) Challenge 2021.*

**A Simple Baseline for Fast and Accurate Depth Estimation on Mobile Devices. CVPRW 2021.**

Ziyu Zhang, Yicheng Wang, **Zilong Huang**, Guozhong Luo, Gang Yu, Bin Fu.  
*Ranked No. 1 of MAI Monocular Depth Estimation Challenge 2021.*

**Human De-occlusion: Invisible Perception and Recovery for Humans.** CVPR 2021.  
Qiang Zhou, Shiyin Wang, Yitong Wang, **Zilong Huang**, Xinggang Wang.

**Attentive Fine-grained Semantic Features for Fast Semantic Segmentation.** In Submission 2021.  
Tianheng Cheng, Xinggang Wang, Yu Li, **Zilong Huang**, Ying Shan, Wenyu Liu.

**Half-Real Half-Fake Distillation for Class-Incremental Semantic Segmentation.** ArXiv 2021.  
**Zilong Huang**, Wentian Hao, Xinggang Wang, Mingyuan Tao, Jianqiang Huang, Wenyu Liu, XianSheng Hua.

**High-Resolution Deep Image Matting.** AAAI 2021.  
Haichao Yu, Ning Xu, **Zilong Huang**, Yuqian Zhou, Humphrey Shi.

**AlignSeg: Feature-Aligned Segmentation Networks.** TPAMI 2021.  
**Zilong Huang**, Yunchao Wei, Xinggang Wang, Wenyu Liu, Thomas Huang, Humphrey Shi.

**Deep learning-based automated image segmentation for concrete petrographic analysis.** CCR 2020.  
Yu Song, **Zilong Huang**, Chuanyue Shen, Humphrey Shi, David A Lange.

**CCNet: Criss-Cross Attention for Semantic Segmentation.** TPAMI 2020.  
**Zilong Huang**, Xinggang Wang, Yunchao Wei, Lichao Huang, Humphrey Shi, Wenyu Liu, Thomas Huang.

**Agriculture-Vision: A Large Aerial Image Database for Agricultural Pattern Analysis.** CVPR 2020  
Mang Tik Chiu, Xingqian Xu, Yunchao Wei, **Zilong Huang**, Alexander Schwing, Robert Brunner, Hrant Khachatrian, Hovnatan Karapetyan, Ivan Dozier, Greg Rose, David Wilson, Adrian Tudor, Naira Hovakimyan, Thomas S Huang, Humphrey Shi

**Motion-Guided Spatial Time Attention for Video Object Segmentation.** ICCVW 2019.  
Qiang Zhou, **Zilong Huang**, Lichao Huang, Yongchao Gong, Han Shen, Wenyu Liu, Xinggang Wang.  
*Ranked No. 2 of Youtube Video Object Segmentation Challenge 2019.*

**Semantic Image Segmentation by Scale-Adaptive Networks.** TIP 2019.  
**Zilong Huang**, Chunyu Wang, Xinggang Wang, Wenyu Liu, Jingdong Wang.

**CCNet: Criss-Cross Attention for Semantic Segmentation.** ICCV 2019.  
**Zilong Huang**, Xinggang Wang, Lichao Huang, Chang Huang, Yunchao Wei, Wenyu Liu.  
*More than 640 citations, 1.2k stars on Github. PaperDigest Most Influential ICCV 2019 papers (6th-Place). CCNet is also applied in AlphaFold.*

**SPGNet: Semantic Prediction Guidance for Scene Parsing.** ICCV 2019.  
Bowen Cheng, Liang-Chieh Chen, Yunchao Wei, Yukun Zhu, **Zilong Huang**, Jinjun Xiong, Thomas Huang, Wen-Mei Hwu, Humphrey Shi.

**Devil in the Details: Towards Accurate Single and Multiple Human Parsing.** AAAI 2019.  
Tao Ruan\*, Ting Liu\*, **Zilong Huang**, Yunchao Wei, Shikui Wei, Yao Zhao, Thomas Huang.  
*Ranked No. 1 on all human parsing tracks in the 2nd LIP Challenge 2018.*

**Proposal,Tracking&Segmentation:A Cascaded Network for Video Object Segmentation.**ECCVW 2018.  
**Zilong Huang\***, Qiang Zhou\*, Xinggang Wang, Yongchao Gong, Han Shen, Lichao Huang, Chang Huang, Wenyu Liu.  
*Ranked No. 2 of Youtube Video Object Segmentation Challenge 2018.*

**A PyTorch Semantic Segmentation Toolbox.** Technical report 2018.  
**Zilong Huang**, Yunchao Wei, Xinggang Wang, Wenyu Liu.  
*More than 700 stars on Github.*

**Weakly-supervised semantic segmentation network with deep seeded region growing.** CVPR 2018.  
**Zilong Huang**, Xinggang Wang, Jiasi Wang, Wenyu Liu, Jingdong Wang.  
*More than 250 citations, 200 stars on Github.*

**Object-level proposals.** ICCV 2017.  
Jianxiang Ma, Anlong Ming, **Zilong Huang**, Xinggang Wang, Yu Zhou.

**Deep patch learning for weakly supervised object classification and discovery. PR 2017.**

*Peng Tang, Xinggang Wang, Zilong Huang, Xiang Bai, Wenyu Liu.*

## ACADEMIC ACTIVITIES

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- CVPR21 the 3rd Person in Context (PIC) Workshop talk: "Shuffle Transformer with Feature Alignment for Video Face Parsing", 2021.
- ECCV18 Large-scale Video Object Segmentation Challenge Workshop talk: "Proposal Tracking and Segmentation (PTS): A cascaded network for video object segmentation", 2018.
- VALSE Pixel Level Image Understanding Workshop talk: "Weakly-Supervised Semantic Segmentation Network with Deep Seeded Region Growing", 2018.
- Reviewer for the following journals/conferences: TPAMI/IJCV/TIP/TCSVT/Neurocomputing/CVPR 2019-2022/ICCV/ECCV/ICLR/ACCV/WACV.
- Member of the Program Committee (PC) for AAAI 2020-2022.

## AWARDS AND ACHIEVEMENTS

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- 1st Place in the MAI Monocular Depth Estimation Challenge in conjunction with CVPR 2021.
- 1st Place in the Short-video Face Parsing Track of The 3rd Person in Context (PIC) Workshop in conjunction with CVPR 2021.
- Global Top 100 Chinese Rising Stars in Artificial Intelligence, Baidu, 2021.
- 2nd Place in the 2st Large-scale Video Object Segmentation Challenge Workshop in conjunction with ICCV 2019.
- 2nd Place in the 1st Large-scale Video Object Segmentation Challenge Workshop in conjunction with ECCV 2018.
- National Ph.D. Scholarship, Ministry of Education, China, 2019.
- Zhixing Graduate Student Scholarship, HUST, 2019.
- Merit Award (Top 20/843) of Alibaba Large-scale Image Search Challenge, Dec. 2015.
- Outstanding Graduate, HUST, 2015.

## SKILLS

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- **Programming:** Reasonably familiar with Python, Java, C/C++ and CUDA. Good spirit of open source with **>2.5K stars in Github**.
- **Computer vision and machine learning:** Familiar with several CV/ML algorithms including semantic segmentation, object detection/recognition, pose estimation, video object segmentation and convolutional neural networks. Proficient in deep learning framework Caffe and Pytorch, as well as general purpose libraries including OpenCV, scikit-learn and VLFeat.
- **Natural languages:** Mandarin (Native); English (Familiar).