Wenwei **Zhang**

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Education

Nanyang Technological University — *Singapore*

Ph.D. in Computer Science — *July 2019 - May 2023 (Expected)*

- Affiliate with S-Lab and MMLab@NTU, supervised by Prof. Chen Change Loy.
- Focus on computer vision. I am working on unifying visual perceptual algorithms in different modalities.
- Dedicate to open source. I am one of the core maintainers of OpenMMLab, the most popular open-source algorithm platform for computer vision.

Wuhan University — *Wuhan, China*

B.S. in Software Engineering — *Sept. 2015 - June 2019*

- Ranking 2/305 (Top 1%), GPA 3.65/4
- Awarded National Scholarship, the highest undergraduate student award in China.

Experience

SenseTime Group Ltd — *Beijing & Shenzhen, China*

Research Intern at the Autonomous Driving Group — *Jan. - May 2018 & Nov. 2018 - July 2019*

- [ICCV 2019] Investigate multi-modality multi-object tracking (MOT), made the first attempt to use deep representation of point cloud in MOT, achieved state-of-the-art performance on the KITTI dataset.
- [ACMMM 2018] Explore a coarse-to-fine strategy to facilitate lane segmentation, SOTA results on the CULane Dataset.

iNCML Lab, York University — *Toronto, Canada*

Summer Research Intern — *June 2018 - Aug. 2018*

- Worked on Question and Answering (QA) with the Fixed-size Ordinally-Forgetting Encoding (FOFE) method and feed forward neural network.

Financial Information and Services Science Laboratory, Wuhan University — *Wuhan, China*

Research Assistant — *Dec. 2015 - Feb. 2018*

- Investigated the origin of consciousness and human intelligence by surveying relevant literature and published the findings in books through Tsinghua University Press.
- Created Wuhan University (WHU)'s first WeChat application of campus tour guidance for 8000+ users, and an H5 application for popular food promotion around WHU

Open Source Projects

MMDetection: OpenMMLab detection toolbox and benchmark [Github] — *Github star **15.5k+**, fork **5.5k+***

Core maintainer & developer — *Oct. 2019 - present*

- MMDetection unifies the pipeline and modular design of multiple 2D detection and instance segmentation frameworks.
- It supports multiple detection frameworks out of box, with high efficiency and state-of-the-art results.
- It has re-implemented more than **50** algorithms and released more than **400** pre-trained models, and has been used in more than **490** projects in the community (till 2021/07/05), which provides comprehensive baselines and references for future research.
- It is one of the most popular research and production platforms for 2D image perception.

MMDetection3D: OpenMMLab next-generation platform for general 3D perception [Github] — *Github star 1.3k+*

Core maintainer & developer — *Jan. 2020 - present*

- MMDetection3D unifies the pipeline and modular design of mono3D, LiDAR-based, and multi-modality 3D object detection.
- It supports state-of-the-art 3D object detectors of different modalities in multiple indoor and outdoor datasets.
- It could also directly use all the **400+** models and **50+** algorithms in MMDetection.
- It builds strong foundations, in a universal framework, for general 3D object detection.

MMCV: OpenMMLab foundational library for computer vision [Github] *Github star 2.4k+*

CORE MAINTAINER & DEVELOPER *Oct. 2019 - present*

- MMCV unifies the training and testing pipeline of OpenMMLab projects, covering **15+** computer vision tasks.
- It provides common utilities and abstract framework interfaces to OpenMMLab projects.
- It support the most comprehensive CUDA operators in computer vision.

Publication

K-Net: Towards Unified Image Segmentation [PDF]

WENWEI ZHANG, ZHE WANG, CHEN CHANGE LOY

arXiv, 2021

New state of the art on COCO Panoptic Segmentation and ADE20K Semantic Segmentation datasets

Exploring Data Augmentation for Multi-Modality 3D Object Detection [PDF]

WENWEI ZHANG, ZHE WANG, CHEN CHANGE LOY

arXiv, 2020

Key component for the Best Planning KL-Divergence (PKL) metric and 2nd runner-up in nuScenes Detection Challenge, 2020

Seesaw Loss for Long-Tailed Instance Segmentation [PDF]

JIAQI WANG, **WENWEI ZHANG**, YUHANG ZANG, YUHANG CAO, JIANGMIAO PANG, TAO GONG, KAI CHEN, ZIWEI LIU, CHEN CHANGE LOY, DAHUA LIN

IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2021

Key component for the 2nd runner-up method in LVIS Challenge 2020

Side-Aware Boundary Localization for More Precise Object Detection [PDF]

JIAQI WANG, **WENWEI ZHANG**, YUHANG CAO, KAI CHEN, JIANGMIAO PANG, TAO GONG, JIANPING SHI, CHEN CHANGE LOY, DAHUA LIN

European Conference on Computer Vision (ECCV) , 2020 (spotlight)

Key component for the 1st place method in COCO Detection Challenge 2019

EcoNAS: Finding Proxies for Economical Neural Architecture Search [PDF]

DONGZHAN ZHOU, XINCHI ZHOU, **WENWEI ZHANG**, CHEN CHANGE LOY, SHUAI YI, XUESEN ZHANG, WANLI OUYANG

IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2020

Robust Multi-Modality Multi-Object Tracking [PDF]

WENWEI ZHANG, HUI ZHOU, SHUYANG SUN, ZHE WANG, JIANPING SHI, CHEN CHANGE LOY

International Conference on Computer Vision (ICCV), 2019

StripNet: Towards Topology Consistent Strip Structure Segmentation [PDF]

GUOXIANG QU*, **WENWEI ZHANG***, ZHE WANG, XING DAI, JIANPING SHI, YU QIAO

ACM International Conference on Multimedia (ACMMM), 2018

***Before the Rise of Machines, The beginning of Consciousness and the Human Intelligence* [Link]**

H. J. CAI, TIANQI CAI, **WENWEI ZHANG**, KAI WANG

Tsinghua University Press, March, 2017

Awarded the Wu Wenjun Award for Science and Technology of Artificial Intelligence.

Honors & Awards

2020 **Best PKL Award and second runner-up,** nuScenes Detection Challenge of 5th AI Driving Olympics

2020 **Second runner-up,** LVIS Challenge

2019 **Winner (without extra data),** COCO Instance Segmentation Challenge

2018 **Huawei Scholarship and First Prize Scholarship,** Wuhan University

2017 **Third Prize Scholarship,** Wuhan University

2016 **National Scholarship and First Prize Scholarship,** Wuhan University

Reviews

Conferences CVPR (2020, 2021), ECCV 2020, ACM MM 2020, ICCV 2021

Skills

Programming Pytorch, Torch, Matlab, OpenCV, Python, C++, JAVA, Latex