

# Yongming Rao

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## Education

<b>Department of Automation, Tsinghua University</b> PhD student in Computer Vision Advisor: Prof. Jiwen Lu	Beijing, China 2018-present
<b>Department of Electronic Engineering, Tsinghua University</b> B.E. in Electronic Engineering	Beijing, China 2014-2018
<b>PBC School of Finance, Tsinghua University</b> Minor in Finance	Beijing, China 2015-2018

## Publications

\* indicates equal contribution

### Peer-Reviewed Conference Publications

- [1] **Yongming Rao**, Wenliang Zhao, Jiwen Lu, Jie Zhou  
**AMixer: Adaptive Weight Mixing for Self-Attention Free Vision Transformers**  
17th European Conference on Computer Vision (ECCV), 2022
- [2] Yi Wei, Zibu Wei, **Yongming Rao**, Jiaxin Li, Jiwen Lu, Jie Zhou  
**LiDAR Distillation: Bridging the Beam-Induced Domain Gap for 3D Object Detection**  
17th European Conference on Computer Vision (ECCV), 2022
- [3] **Yongming Rao\***, Wenliang Zhao\*, Guangyi Chen, Yansong Tang, Zheng Zhu, Jie Zhou, Jiwen Lu  
**DenseCLIP: Language-Guided Dense Prediction with Context-Aware Prompting**  
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2022
- [4] Xumin Yu\*, Lulu Tang\*, **Yongming Rao\***, Tiejun Huang, Jie Zhou, Jiwen Lu  
**Point-BERT: Pre-training 3D Point Cloud Transformers with Masked Point Modeling**  
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2022
- [5] Jinglin Xu\*, **Yongming Rao\***, Xumin Yu, Guangyi Chen, Jie Zhou, Jiwen Lu  
**FineDiving: A Fine-grained Dataset for Procedure-aware Action Quality Assessment**  
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2022, **Oral Presentation**
- [6] Ziyi Wang, **Yongming Rao**, Xumin Yu, Jie Zhou, Jiwen Lu  
**SemAffiNet: Semantic-Affine Transformation for Point Cloud Segmentation**  
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2022
- [7] Tianpei Gu, Guangyi Chen, Junlong Li, Chunze Lin, **Yongming Rao**, Jie Zhou, Jiwen Lu  
**Stochastic Trajectory Prediction via Motion Indeterminacy Diffusion**  
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2022
- [8] Xiuwei Xu, Yifan Wang, Yu Zheng, **Yongming Rao**, Jiwen Lu, Jie Zhou  
**Back to Reality: Weakly-supervised 3D Object Detection with Shape-guided Label Enhancement**  
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2022
- [9] **Yongming Rao**, Wenliang Zhao, Zheng Zhu, Jiwen Lu, Jie Zhou  
**Global Filter Networks for Image Classification**  
Thirty-fifth Conference on Neural Information Processing Systems (NeurIPS), 2021
- [10] **Yongming Rao**, Wenliang Zhao, Benlin Liu, Jiwen Lu, and Jie Zhou, Cho-Jui Hsieh  
**DynamicViT: Efficient Vision Transformers with Dynamic Token Sparsification**  
Thirty-fifth Conference on Neural Information Processing Systems (NeurIPS), 2021
- [11] Xumin Yu\*, **Yongming Rao\***, Ziyi Wang, Zuyan Liu, Jiwen Lu, Jie Zhou  
**PointTr: Diverse Point Cloud Completion with Geometry-Aware Transformers**  
IEEE International Conference on Computer Vision (ICCV), 2021, **Oral Presentation**

- [12] Yi Wei , Shaohui Liu, **Yongming Rao**, Wang Zhao, Jiwen Lu , Jie Zhou  
**NerfingMVS: Guided Optimization of Neural Radiance Fields for Indoor Multi-view Stereo**  
IEEE International Conference on Computer Vision (ICCV), 2021, **Oral Presentation**
- [13] **Yongming Rao\***, Benlin Liu\*, Yi Wei , Jiwen Lu , Cho-Jui Hsieh , Jie Zhou  
**RandomRooms: Unsupervised Pre-training from Synthetic Shapes and Randomized Layouts for 3D Object Detection**  
IEEE International Conference on Computer Vision (ICCV), 2021
- [14] **Yongming Rao\***, Guangyi Chen\*, Jiwen Lu , Jie Zhou  
**Counterfactual Attention Learning for Fine-Grained Visual Categorization and Re-identification**  
IEEE International Conference on Computer Vision (ICCV), 2021
- [15] Wenliang Zhao\*, **Yongming Rao\***, Ziyi Wang, Jiwen Lu , Jie Zhou  
**Towards Interpretable Deep Metric Learning with Structural Matching**  
IEEE International Conference on Computer Vision (ICCV), 2021
- [16] Xumin Yu\*, **Yongming Rao\***, Wenliang Zhao, Jiwen Lu , Jie Zhou  
**Group-aware Contrastive Regression for Action Quality Assessment**  
IEEE International Conference on Computer Vision (ICCV), 2021
- [17] Yi Wei\*, Ziyi Wang\*, **Yongming Rao\***, Jiwen Lu , Jie Zhou  
**PV-RAFT: Point-Voxel Correlation Fields for Scene Flow Estimation of Point Clouds**  
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2021
- [18] Benlin Liu\*, **Yongming Rao\***, Jiwen Lu , Jie Zhou , Cho-Jui Hsieh  
**Multi-Proxy Wasserstein Classifier for Image Classification**  
35th AAAI Conference on Artificial Intelligence (AAAI), 2021
- [19] Guangyi Chen\*, **Yongming Rao\***, Jiwen Lu, and Jie Zhou  
**Temporal Coherence or Temporal Motion: Which is More Critical for Video-based Person Re-identification?**  
16th European Conference on Computer Vision (ECCV), 2020
- [20] Benlin Liu, **Yongming Rao**, Jiwen Lu, and Jie Zhou, Cho-Jui Hsieh  
**MetaDistiller: Network Self-Boosting via Meta-Learned Top-Down Distillation**  
16th European Conference on Computer Vision (ECCV), 2020
- [21] **Yongming Rao**, Jiwen Lu, and Jie Zhou  
**Global-Local Bidirectional Reasoning for Unsupervised Representation Learning of 3D Point Clouds**  
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2020
- [22] Cheng Ma, **Yongming Rao**, Yean Cheng, Ce Chen, Jiwen Lu, and Jie Zhou  
**Structure-Preserving Super Resolution with Gradient Guidance**  
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2020
- [23] Cheng Ma, Zhengyu Jiang, **Yongming Rao**, Jiwen Lu, and Jie Zhou  
**Deep Face Super-Resolution with Iterative Collaboration between Attentive Recovery and Landmark Estimation**  
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2020
- [24] **Yongming Rao**, Jiwen Lu, and Jie Zhou  
**Spherical Fractal Convolution Neural Networks for Point Cloud Recognition**  
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2019
- [25] Yansong Tang, Dajun Ding, **Yongming Rao**, Yu Zheng, Danyang Zhang, Lili Zhao, Jiwen Lu, and Jie Zhou  
**COIN: A Large-scale Dataset for Comprehensive Instruction Video Analysis**  
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2019
- [26] **Yongming Rao**, Dahua Lin, Jiwen Lu, and Jie Zhou  
**Learning Globally Optimized Object Detector via Policy Gradient**  
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2018, **Spotlight Presentation**
- [27] Ji Lin\*, **Yongming Rao\***, Jiwen Lu, and Jie Zhou  
**Runtime Neural Pruning**  
The Thirty-first Annual Conference on Neural Information Processing Systems (NeurIPS), 2017
- [28] **Yongming Rao**, Ji Lin, Jiwen Lu, and Jie Zhou  
**Learning Discriminative Aggregation Network for Video-Based Face Recognition**  
IEEE International Conference on Computer Vision (ICCV), 2017, **Spotlight Presentation**
- [29] **Yongming Rao**, Jiwen Lu, and Jie Zhou  
**Attention-aware Deep Reinforcement Learning for Video Face Recognition**  
IEEE International Conference on Computer Vision (ICCV), 2017

- [30] Bilong Shen, Ying Zhao, Guoliang Li, Weimin Zheng, Yue Qin, Bo Yuan, and **Yongming Rao**  
**V-tree: Efficient KNN Search on Moving Objects with Road-Network Constraints**  
 IEEE 33rd International Conference on Data Engineering (ICDE), 2017

### Peer-Reviewed Journal Publications

- [31] **Yongming Rao**, Jiwen Lu, and Jie Zhou  
**PointGLR: Unsupervised Structural Representation Learning of 3D Point Clouds**  
 IEEE Transactions on Pattern Analysis and Machine Intelligence (**T-PAMI**, *IF: 24.31*), 2022
- [32] Cheng Ma, **Yongming Rao**, Jiwen Lu, and Jie Zhou  
**Structure-Preserving Image Super-Resolution**  
 IEEE Transactions on Pattern Analysis and Machine Intelligence (**T-PAMI**, *IF: 24.31*), 2021
- [33] **Yongming Rao**, Jiwen Lu, and Jie Zhou  
**Learning Discriminative Aggregation Network for Video-based Face Recognition and Person Re-identification**  
 International Journal of Computer Vision (**IJCV**, *IF: 13.37*), 2019
- [34] **Yongming Rao**, Jiwen Lu, Ji Lin, and Jie Zhou  
**Runtime Network Routing for Efficient Image Classification**  
 IEEE Transactions on Pattern Analysis and Machine Intelligence (**T-PAMI**, *IF: 24.31*), 2019

### Honors and Awards

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- 1st place in the MVP Point Cloud Completion Challenge (ICCV 2021 Workshop) 2021
- Baidu Top 100 Chinese Rising Stars in AI 2021
- CVPR 2021 Outstanding Reviewer 2021
- ECCV 2020 Outstanding Reviewer 2020
- 2nd place in Semi-Supervised Recognition Challenge at FGVC7 (CVPR 2020 Workshop) 2020
- 2019 CCF-CV Academic Emerging Award 2019
- Chinese National Scholarship 2019
- ICME 2019 Best Reviewers Award 2019
- NeurIPS 2019 Top 50% High-Scoring Reviewer 2019
- 1st prize in Beijing University Academic Forum on Artificial Intelligence 2019
- 1st place in Momenta Lane Detection Challenge 2018
- 2017 Sensetime Undergraduate Scholarship 2017
- 1st place in 17th Electronic Design Contest of Tsinghua University 2016
- Huawei Innovation Prize in 2016 Tsinghua Challenge Cup 2016
- EMC Innovation Prize in 2016 Tsinghua Challenge Cup 2016

### Academic Services

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#### Co-Organizer

- Tutorial on Deep Reinforcement Learning for Computer Vision at CVPR 2019.

#### Conference Senior PC Member

- International Joint Conference on Artificial Intelligence (IJCAI), 2021

#### Conference Reviewer / PC Member

- IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2018-2022
- International Conference on Computer Vision (ICML), 2019, 2021
- European Conference on Computer Vision (ECCV), 2020, 2022
- International Conference on Machine Learning (ICML), 2019-2022
- Conference on Neural Information Processing Systems (NeurIPS), 2019-2022
- International Conference on Learning Representations (ICLR), 2021, 2022

- SIGGRAPH Asia 2022
- IEEE Winter Conference on Applications of Computer Vision (WACV), 2020-2022
- IEEE International Conference on Multimedia and Expo (ICME), 2019-2022

### **Journal Reviewer**

- IEEE Transactions on Pattern Analysis and Machine Intelligence (T-PAMI)
- International Journal of Computer Vision (IJCV)
- IEEE Transactions on Neural Networks and Learning Systems (T-NNLS)
- IEEE Transactions on Image Processing (T-IP)
- IEEE Transactions on Multimedia (T-MM)
- Pattern Recognition (PR)
- Transactions on Machine Learning Research (TMLR)