

# Xue Yang (杨学)

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Homepage: <https://yangxue0827.github.io>



## Education

2012.09 ~ 2016.07	Central South University (985/211), Hunan	<i>Bachelor: Automation</i>
2016.09 ~ 2019.07	University of Chinese Academy of Sciences, Beijing	<i>Master: SIP</i>
2019.09 ~ 2023.07	Shanghai Jiao Tong University (985/211), Shanghai	<i>Ph.D.: CSE</i>
(expected)	MoE-AILab, SJTU, Shanghai	<i>Supervisor: <u>Prof. Junchi Yan</u></i>
	(First Wu Wenjun AI Honorary Doctorate Class)	



## Publications

**Publication:** 11 first author papers, 7 collaborative papers

**Reviewer:** NeurIPS, ICML, ECCV, CVPR, AAAI, ACM MM; IJCV, TIP, PR, TCSVT, TGRS

**Google Scholar:** <https://scholar.google.com/citations?user=2xTlvV0AAAAJ&hl=en>

**Citation:** 2156

**GitHub:** <https://github.com/yangxue0827>, <https://github.com/DetectionTeamUCAS>

### Top-Tier Computer Vision Papers:

- Detecting Rotated Objects as Gaussian Distributions and Its 3-D Generalization  
**Xue Yang**, Gefan Zhang, Xiaojiang Yang, Yue Zhou, Wentao Wang, Jin Tang, Tao He, Junchi Yan  
TPAMI 2022 (CCF-A)
- MMRotate: A Rotated Object Detection Benchmark using PyTorch  
Yue Zhou\*, **Xue Yang\*** (equal contribution), Gefan Zhang, Jiabao Wang, Yanyi Liu, Liping Hou, Xue Jiang, Xingzhao Liu, Junchi Yan, Chengqi Lyu, Wenwei Zhang, Kai Chen  
ACM MM 2022 (CCF-A, Oral)
- SCRDet++: Detecting Small, Cluttered and Rotated Objects via Instance-Level Feature Denoising and Rotation Loss Smoothing  
**Xue Yang**, Junchi Yan, Wenlong Liao, Xiaokang Yang, Jin Tang, Tao He  
TPAMI 2022 (CCF-A)
- On the Arbitrary-Oriented Object Detection: Classification based Approaches Revisited  
**Xue Yang**, Junchi Yan  
IJCV 2022 (CCF-A)
- Learning High-Precision Bounding Box for Rotated Object Detection via Kullback-Leibler Divergence  
**Xue Yang**, Xiaojiang Yang, Jirui Yang, Qi Ming, Wentao Wang, Qi Tian, Junchi Yan  
NeurIPS 2021 (CCF-A)
- Rethinking Rotated Object Detection with Gaussian Wasserstein Distance Loss  
**Xue Yang**, Junchi Yan, Qi Ming, Wentao Wang, Xiaopeng Zhang, Qi Tian  
ICML 2021 (CCF-A)
- Dense Label Encoding for Boundary Discontinuity Free Rotation Detection  
**Xue Yang**, Liping Hou, Yue Zhou, Wentao Wang, Junchi Yan  
CVPR 2021 (CCF-A)
- R<sup>3</sup>Det: Refined Single-Stage Detector with Feature Refinement for Rotating Object  
**Xue Yang**, Junchi Yan, Ziming Feng, Tao He  
AAAI 2021 (CCF-A) (Most Influential AAAI'21 Paper, Top 1, Paper Digest)
- Arbitrary-Oriented Object Detection with Circular Smooth Label  
**Xue Yang**, Junchi Yan  
ECCV 2020 (CCF-B)
- SCRDet: Towards More Robust Detection for Small, Cluttered and Rotated Objects

**Xue Yang**, Jirui Yang, Junchi Yan, Yue Zhang, Tengfei Zhang, Zhi Guo, Sun Xian, Kun Fu  
ICCV 2019 (CCF-A)




11. Automatic Ship Detection in Remote Sensing Images from Google Earth of Complex Scenes Based on Multiscale Rotation Dense Feature Pyramid Networks  
**Xue Yang**, Hao Sun, Kun Fu, Jirui Yang, Xian Sun, Menglong Yan, Zhi Guo  
Remote Sensing, 2018 **(ESI Highly Cited Papers)**
12. Learning Modulated Loss for Rotated Object Detection  
Wen Qian, **Xue Yang**, Silong Peng, Junchi Yan, Yue Guo  
AAAI 2021 (CCF-A) **(Most Influential AAAI'21 Paper, Top 10, Paper Digest)**
13. Dual-path Image Inpainting with Auxiliary GAN Inversion  
Wentao Wang, Li Niu, Jianfu Zhang, **Xue Yang**, Liqing Zhang  
CVPR 2022 (CCF-A)
14. Parallel Multi-Resolution Fusion Network for Image Inpainting  
Wentao Wang, Jianfu Zhang, Li Niu, Haoyu Ling, **Xue Yang**, Liqing Zhang  
ICCV 2021 (CCF-A)
15. RSDet++: Point-based Modulated Loss for More Accurate Rotated Object Detection  
Wen Qian, **Xue Yang**, Silong Peng, Junchi Yan, Xiujuan Zhang  
TCSVT 2022 (CCF-B)
16. Optimization for Oriented Object Detection via Representation Invariance Loss  
Qi Ming, Zhiqiang Zhou, Lingjuan Miao, **Xue Yang**, Yunpeng Dong  
GRSL 2021 (CCF-C)
17. Rethinking Classification and Localization for Cascade R-CNN  
Ang Li, **Xue Yang**, Chongyang Zhang  
BMVC 2019 (CCF-C)
18. Sparse Label Assignment for Oriented Object Detection in Aerial Images  
Qi Ming, Lingjuan Miao, Zhiqiang Zhou, Junjie Song, **Xue Yang**  
Remote Sensing, 2021

#### Preprints:

1. AlphaRotate: A Rotation Detection Benchmark using TensorFlow  
**Xue Yang**, Yue Zhou, Junchi Yan
2. The KFIoU Loss for Rotated Object Detection  
**Xue Yang**, Yue Zhou, Gefan Zhang, Jirui Yang, Wentao Wang, Junchi Yan, Xiaopeng Zhang, Qi Tian
3. G-Rep: Gaussian Representation for Arbitrary-Oriented Object Detection  
Liping Hou, Ke Lu, **Xue Yang**, Yuqiu Li, Jian Xue



## Internship

2022.02 ~ Now	<b>EI Innovation Lab, Huawei Cloud BU, Shanghai</b> Working with Prof. Qi Tian and Dr. Xiaopeng Zhang on pre-training model.	 HUAWEI
2020.10 ~ 2021.07	<b>EI Innovation Lab, Huawei Cloud BU, Shenzhen</b> Working with Prof. Qi Tian and Dr. Xiaopeng Zhang on rotated object detection, two papers are accepted by ICML 2021 and NeurIPS 2021.	 HUAWEI
2018.12 ~ 2019.07	<b>Detection Group, Megvii (Face++) Research, Beijing</b> Working with Dr. Gang Yu on detection algorithms.	 MEGVII 旷视
2017.04 ~ 2017.07	<b>Samsung R&amp;D Institute China, Beijing</b>	 SAMSUNG



## Awards and Honors

2022	Doctoral National Scholarship
2021	Nominated by SJTU Scholar Star (10 official and 10 nomination awards in SJTU)
2021	Top 40 in the ninth Baidu Scholarship

2021	Doctoral National Scholarship (Top 1 in CSE)
2019	Wu Wenjun Artificial Intelligence PhD Scholarship
2019	<b>1<sup>st</sup> Place</b> in WAD2019 Challenge on the D <sup>2</sup> -City & BDD100K Detection Domain Adaption track
2019	<b>3<sup>rd</sup>/4<sup>th</sup> Place</b> in DOAI2019 Challenge on the HBB/OBB track
2016-2019	Outstanding Student Leader, Outstanding Student, <b>Second Prize</b> in PMCM (2017)
2012-2016	Outstanding Student Leader, Outstanding Student, Outstanding Graduates, National Inspirational Scholarship, <b>Honorable Mention</b> in MCM/ICM (2015), <b>Second Prize</b> in APMCM (2016)



## Open Source Projects

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All my open source projects on GitHub have accumulated more than 6,000 stars, Some major open source projects are as follow:

**1. AlphaRotate: A Rotation Detection Benchmark using TensorFlow**

Github (952 star): <https://github.com/yangxue0827/RotationDetection>

AlphaRotate is an open source rotation detection toolbox based on TensorFlow.

**2. MMRotate: A Rotated Object Detection Benchmark using PyTorch**

Github (926 star): <https://github.com/open-mmlab/mmrrotate>

MMRotate is an open source rotation detection toolbox based on PyTorch.

**3. DetectionTeamUCAS**

Github (2.5k star): <https://github.com/DetectionTeamUCAS>

It contains many general detection and rotation detection algorithms that reimplemented by myself.

**4. R<sup>3</sup>Det: Refined Single-Stage Detector with Feature Refinement for Rotating Object**

Github (710 star): [https://github.com/Thinklab-SJTU/R3Det\\_Tensorflow](https://github.com/Thinklab-SJTU/R3Det_Tensorflow)

<https://github.com/SJTU-Thinklab-Det/r3det-on-mmdetection>

<https://github.com/SJTU-Thinklab-Det/r3det-pytorch>

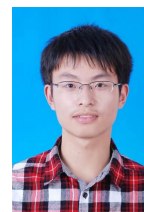
A novel refined rotation detector accepted by AAAI 2021.

# 杨学 (Xue Yang)

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## 教育背景

2012.09 ~ 2016.07	中南大学 (985/211), 湖南	本科: 自动化
2016.09 ~ 2019.07	中国科学院大学, 北京	硕士 (保研): 信号与信息处理
2019.09 ~ 2023.07	上海交通大学 (985/211), 上海	博士: 计算机科学与技术
(预计)	上海交通大学人工智能研究院, 上海	导师: 严骏驰副教授
	(首届吴文俊人工智能荣誉博士班成员)	



## 学术成果

发表文章数量: 11 篇一作论文, 7 篇合作论文

审稿人: NeurIPS, ICML, ECCV, CVPR, AAAI, ACM MM; IJCV, TIP, PR, TCSVT, TGRS

谷歌学术: <https://scholar.google.com/citations?user=2xTlvV0AAAAJ&hl=zh-CN>

引用量: 2156

GitHub: <https://github.com/yangxue0827>、<https://github.com/DetectionTeamUCAS>

已发表文章:

- Detecting Rotated Objects as Gaussian Distributions and Its 3-D Generalization  
**Xue Yang**, Gefan Zhang, Xiaojiang Yang, Yue Zhou, Wentao Wang, Jin Tang, Tao He, Junchi Yan  
TPAMI 2022 (CCF-A)
- MMRotate: A Rotated Object Detection Benchmark using PyTorch  
Yue Zhou\*, **Xue Yang\*** (共同一作), Gefan Zhang, Jiabao Wang, Yanyi Liu, Liping Hou, Xue Jiang, Xingzhao Liu, Junchi Yan, Chengqi Lyu, Wenwei Zhang, Kai Chen  
ACM MM 2022 (CCF-A, **Oral**)
- SCRDet++: Detecting Small, Cluttered and Rotated Objects via Instance-Level Feature Denoising and Rotation Loss Smoothing  
**Xue Yang**, Junchi Yan, Wenlong Liao, Xiaokang Yang, Jin Tang, Tao He  
TPAMI 2022 (CCF-A)
- On the Arbitrary-Oriented Object Detection: Classification based Approaches Revisited  
**Xue Yang**, Junchi Yan  
IJCV 2022 (CCF-A)
- Learning High-Precision Bounding Box for Rotated Object Detection via Kullback-Leibler Divergence  
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- Rethinking Rotated Object Detection with Gaussian Wasserstein Distance Loss  
**Xue Yang**, Junchi Yan, Qi Ming, Wentao Wang, Xiaopeng Zhang, Qi Tian  
ICML 2021 (CCF-A)
- Dense Label Encoding for Boundary Discontinuity Free Rotation Detection  
**Xue Yang**, Liping Hou, Yue Zhou, Wentao Wang, Junchi Yan  
CVPR 2021 (CCF-A)
- R<sup>3</sup>Det: Refined Single-Stage Detector with Feature Refinement for Rotating Object  
**Xue Yang**, Junchi Yan, Ziming Feng, Tao He  
AAAI 2021 (CCF-A) (**入选 Paper Digest 评选的最具影响力的 AAAI'21 论文第 1 名**)
- Arbitrary-Oriented Object Detection with Circular Smooth Label  
**Xue Yang**, Junchi Yan  
ECCV 2020 (CCF-B)
- SCRDet: Towards More Robust Detection for Small, Cluttered and Rotated Objects  
**Xue Yang**, Jirui Yang, Junchi Yan, Yue Zhang, Tengfei Zhang, Zhi Guo, Sun Xian, Kun Fu

ICCV 2019 (CCF-A)





11. Automatic Ship Detection in Remote Sensing Images from Google Earth of Complex Scenes Based on Multiscale Rotation Dense Feature Pyramid Networks  
**Xue Yang**, Hao Sun, Kun Fu, Jirui Yang, Xian Sun, Menglong Yan, Zhi Guo  
Remote Sensing, 2018 (ESI 高被引论文)
12. Learning Modulated Loss for Rotated Object Detection  
Wen Qian, **Xue Yang**, Silong Peng, Junchi Yan, Yue Guo  
AAAI 2021 (CCF-A) (入选 Paper Digest 评选的最具影响力的 AAAI'21 论文第 10 名)
13. Dual-path Image Inpainting with Auxiliary GAN Inversion  
Wentao Wang, Li Niu, Jianfu Zhang, **Xue Yang**, Liqing Zhang  
CVPR 2022 (CCF-A)
14. Parallel Multi-Resolution Fusion Network for Image Inpainting  
Wentao Wang, Jianfu Zhang, Li Niu, Haoyu Ling, **Xue Yang**, Liqing Zhang  
ICCV 2021 (CCF-A)
15. RSDet++: Point-based Modulated Loss for More Accurate Rotated Object Detection  
Wen Qian, **Xue Yang**, Silong Peng, Junchi Yan, Xiujuan Zhang  
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Qi Ming, Zhiqiang Zhou, Lingjuan Miao, **Xue Yang**, Yunpeng Dong  
GRSL 2021 (CCF-C)
17. Rethinking Classification and Localization for Cascade R-CNN  
Ang Li, **Xue Yang**, Chongyang Zhang  
BMVC 2019 (CCF-C)
18. Sparse Label Assignment for Oriented Object Detection in Aerial Images  
Qi Ming, Lingjuan Miao, Zhiqiang Zhou, Junjie Song, **Xue Yang**  
Remote Sensing, 2021

预印文章:

1. AlphaRotate: A Rotation Detection Benchmark using TensorFlow  
**Xue Yang**, Yue Zhou, Junchi Yan
2. The KFIoU Loss for Rotated Object Detection  
**Xue Yang**, Yue Zhou, Gefan Zhang, Jirui Yang, Wentao Wang, Junchi Yan, Xiaopeng Zhang, Qi Tian
3. G-Rep: Gaussian Representation for Arbitrary-Oriented Object Detection  
Liping Hou, Ke Lu, **Xue Yang**, Yuqiu Li, Jian Xue



## 实习经历

- |                   |   |   |
|-------------------|---|---|
| 2022.02 ~ 至今      | 华为云, EI 创新孵化实验室, 上海<br>在田奇教授和张晓鹏博士指导下研究大规模预训练模型。                        |  HUAWEI    |
| 2020.10 ~ 2021.07 | 华为云, EI 创新孵化实验室, 深圳<br>在田奇教授和张晓鹏博士指导下研究旋转目标检测, 并发表ICML2021和NeurIPS2021。 |  HUAWEI    |
| 2018.12 ~ 2019.07 | 旷视科技, 检测组, 北京<br>在俞刚博士指导下从事目标检测算法的研究。                                   |  MEGVII 旷视 |
| 2017.04 ~ 2017.07 | 中国三星电子研究院, 北京   |  SAMSUNG   |



## 获奖荣誉

- |      |  |
|------|--|
| 2022 | 博士生国家奖学金                               |
| 2021 | 上海交通大学“学术之星”提名奖 (全校共 10 个正式奖和 10 个提名奖) |
| 2021 | 百度奖学金全球 40 强                           |
| 2021 | 博士生国家奖学金 (计算机系第一)                      |
| 2019 | 吴文俊人工智能博士奖学金 (每届全校共 20 余人)             |

2019	WAD2019 D <sup>2</sup> -City & BDD100K 检测域自适应赛道挑战赛第一名
2019	DOAI2019 挑战赛 HBB/OBB 赛道第 3/4 名
2016-2019	优秀学生干部, 三好学生, 研究生数学建模比赛二等奖(PMCM, 2017)
2012-2016	优秀学生干部, 三好学生, 优秀毕业生, 国家励志奖学金, 美国大学生数学建模竞赛二等奖(MCM/ICM, 2015), 亚太地区大学生数学建模竞赛二等奖(APMCM, 2016)



## 开源项目

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本人在 GitHub 上所有的开源项目积累超过了 6,000 多个 star, 一些主要的开源项目如下:

- AlphaRotate: A Rotation Detection Benchmark using TensorFlow**  
 Github (952 star): <https://github.com/yangxue0827/RotationDetection>  
 AlphaRotate 是一个基于 TensorFlow 的开源旋转检测工具箱。
- MMRotate: A Rotated Object Detection Benchmark using PyTorch**  
 Github (926 star): <https://github.com/open-mmlab/mmrrotate>  
 MMRotate 是一个基于 PyTorch 的开源旋转检测工具箱。
- DetectionTeamUCAS**  
 Github (2.5k star): <https://github.com/DetectionTeamUCAS>  
 该账号包含许多由本人重新实现的通用检测和旋转检测算法。
- R<sup>3</sup>Det: Refined Single-Stage Detector with Feature Refinement for Rotating Object**  
 Github (710 star): [https://github.com/Thinklab-SJTU/R3Det\\_Tensorflow](https://github.com/Thinklab-SJTU/R3Det_Tensorflow)  
<https://github.com/SJTU-Thinklab-Det/r3det-on-mmdetection>  
<https://github.com/SJTU-Thinklab-Det/r3det-pytorch>  
 一种新颖的级联旋转检测器, 发表于 AAAI2021。