

# 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:

1. 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)
2. 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)
3. 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)
4. On the Arbitrary-Oriented Object Detection: Classification based Approaches Revisited  
**Xue Yang**, Junchi Yan  
IJCV 2022 (CCF-A)
5. 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)
6. 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)
7. Dense Label Encoding for Boundary Discontinuity Free Rotation Detection  
**Xue Yang**, Liping Hou, Yue Zhou, Wentao Wang, Junchi Yan  
CVPR 2021 (CCF-A)
8. 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)
9. Arbitrary-Oriented Object Detection with Circular Smooth Label  
**Xue Yang**, Junchi Yan  
ECCV 2020 (CCF-B)
10. 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

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>

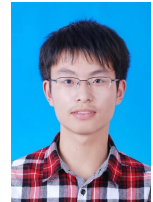
A novel refined rotation detector accepted by AAAI 2021.

# 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  
**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) (**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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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

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 | 旷世科技, 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

- |      |   |
|------|---|
| 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:

- 1. 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。
- 2. 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。
- 3. 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。
- 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>  
 一种新颖的级联旋转检测器, 发表于 AAAI2021。