# Xue Yang(杨学)

Institution: Shanghai AI Laboratory Position: Researcher

Homepage: <a href="https://yangxue0827.github.io">https://yangxue0827.github.io</a> Interests: CV, Object Detection, AI Agent, Vision-Language Models

### Education

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

## **Work Experience**

2023.07 ~ Now	Shanghai AI Laboratory (Full Time), OpenGVLab, Shanghai 上海人工	智能实验室 Intelligence Laboratory
	Researcher, working with Prof. Jifeng Dai on AI Agent and Generic Vision.	
2023.02 ~ 2023.07	Shanghai AI Laboratory (Intern), OpenGVLab, Shanghai 上海人工	智能实验室 Intelligence Laboratory
	Working with Prof. Jifeng Dai on vision-language model.	
2022.02 ~ 2023.01	EI Innovation Lab, Huawei Cloud BU (Intern), Shanghai	<b>₩</b> HUAWEI
	Working with Prof. Qi Tian and Dr. Xiaopeng Zhang on generic /object detection,	one paper
	is accepted by ICLR 2023.	
2020.10 ~ 2021.07	EI Innovation Lab, Huawei Cloud BU (Intern), Shenzhen	<b>₩</b> HUAWEI
	Working with Prof. Qi Tian and Dr. Xiaopeng Zhang on generic/oriented object	
	detection, two papers are accepted by ICML 2021 and NeurIPS 2021.	
2018.12 ~ 2019.07	Detection Group, Megvii (Face++) Research (Intern), Beijing	MEGVII 旷视
	Working with Dr. Gang Yu on detection algorithms.	
2017.04 ~ 2017.07	Samsung Beijing Mobile R&D Center (Intern), Beijing	SAMSUNG

# **Selected Publications**

Google Scholar: <a href="https://scholar.google.com/citations?user=2xTlvV0AAAAJ&hl=en">https://scholar.google.com/citations?user=2xTlvV0AAAAJ&hl=en</a> Citation: 4596

GitHub: <a href="https://github.com/yangxue0827">https://github.com/yangxue0827</a>, <a href="https://github.com/DetectionTeamUCAS">https://github.com/DetectionTeamUCAS</a>

Reviewer: CVPR, ICCV, ECCV, NeurIPS, ICML, ICLR, AAAI, ACM MM; TPAMI, IJCV, TIP, PR, TCSVT

**Publication Summary:** 16 first author papers

Conference: CVPR/ICCV/ECCV (3/3/1), NeurIPS/ICML/ICLR (2/1/3), AAAI (2), ACM MM (1)

Journal: TPAMI (2), IJCV (1), IEEE Transactions (3)

Award: ESI Hot Cited Paper (1), ESI Highly Cited Paper (4), Most Influential Paper (2)

#### Ph.D. Dissertation, Slides, Playback

### **LLMs and AI Agent**

Auto MC-Reward: Automated Dense Reward Design with Large Language Models for Minecraft
Hao Li\*, Xue Yang\* (equal contribution), Zhaokai Wang\*, Xizhou Zhu, Jie Zhou, Yu Qiao, Xiaogang
Wang, Hongsheng Li, Lewei Lu, Jifeng Dai

Homepage: https://yangxue0827.github.io/auto\_mc-reward.html

InternGPT: Solving Vision-Centric Tasks by Interacting with ChatGPT Beyond Language
Zhaoyang Liu, Yinan He, Wenhai Wang, Weiyun Wang, Yi Wang, Shoufa Chen, Qinglong Zhang, Yang
Yang, Qingyun Li, Jiashuo Yu, Kunchang Li, Zhe Chen, Xue Yang, Xizhou Zhu, Yali Wang, Limin Wang,
Ping Luo, Jifeng Dai, Yu Qiao

Homepage: <a href="https://igpt.opengvlab.com/">https://igpt.opengvlab.com/</a>

#### **Oriented Object Detection (Selected)**

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) (ESI Hot Cited Papers, ESI Highly Cited Papers)

4. 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) (ESI Highly Cited Papers)

5. On the Arbitrary-Oriented Object Detection: Classification based Approaches Revisited

Xue Yang, Junchi Yan

IJCV 2022 (CCF-A)

6. Visual Oriented Object Detection via Feature Alignment and Gaussian Parameterization

Xue Yang, Junchi Yan

SCIENTIA SINICA Informationis, 2023 (CCF-T1)

 H2RBox-v2: Incorporating Symmetry for Boosting Horizontal Box Supervised Oriented Object Detection Yi Yu\*, Xue Yang\* (equal contribution), Qingyun Li, Yue Zhou, Gefan Zhang, Feipeng Da, Junchi Yan NeurIPS 2023 (CCF-A)

8. H2RBox: Horizontal Box Annotation is All You Need for Oriented Object Detection

**Xue Yang**, Gefan Zhang, Wentong Li, Xuehui Wang, Yue Zhou, Junchi Yan ICLR 2023 (Tsinghua-A)

9. The KFIoU Loss for Rotated Object Detection

**Xue Yang**, Yue Zhou, Gefan Zhang, Jirui Yang, Wentao Wang, Junchi Yan, Xiaopeng Zhang, Qi Tian ICLR 2023 (Tsinghua-A)

10. 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 <u>ACM MM</u> 2022 (CCF-A, **Oral**)

 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)

12. 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)

13. Dense Label Encoding for Boundary Discontinuity Free Rotation Detection

**Xue Yang**, Liping Hou, Yue Zhou, Wentao Wang, Junchi Yan CVPR 2021 (CCF-A)

14. 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)

15. Arbitrary-Oriented Object Detection with Circular Smooth Label

Xue Yang, Junchi Yan

ECCV 2020 (CCF-B, Tsinghua-A)

16. 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)

17. 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)

18. AlphaRotate: A Rotation Detection Benchmark using TensorFlow

Xue Yang, Yue Zhou, Junchi Yan

<u>ICASSP</u>, 2024 (CCF-B)

19. 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)

20. 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)

21. Task Interleaving and Orientation Estimation for High-Precision Oriented Object Detection in Aerial Images Qi Ming, Lingjuan Miao, Zhiqiang Zhou, Junjie Song, Yunpeng Dong, Xue Yang

**ISPRS** 2023 (ESI Highly Cited Papers)

### **Genertic Object Detection / Instance Segmentation**

22. PatchDCT: Patch Refinement for High Quality Instance Segmentation

Qinrou Wen, Jirui Yang, Xue Yang, Kewei Liang

ICLR 2023 (Tsinghua-A)

23. Rethinking Classification and Localization for Cascade R-CNN

Ang Li, **Xue Yang**, Chongyang Zhang

BMVC 2019 (CCF-C)

### **Scene Text Detection and Recognition**

24. Self-supervised Implicit Glyph Attention for Text Recognition

Tongkun Guan, Chaochen Gu, Jingzheng Tu, Xue Yang, Qi Feng, Yudi Zhao, Wei Shen **CVPR** 2023 (CCF-A)

25. Self-supervised Character-to-Character Distillation for Text Recognition

Tongkun Guan, Wei Shen, Xue Yang, Qi Feng, Zekun Jiang, Xiaokang Yang ICCV 2023 (CCF-A)

### **Low-Level Vision**

26. Dual-path Image Inpainting with Auxiliary GAN Inversion

Wentao Wang, Li Niu, Jianfu Zhang, Xue Yang, Liqing Zhang <u>CVPR</u> 2022 (CCF-A)

27. Parallel Multi-Resolution Fusion Network for Image Inpainting

Wentao Wang, Jianfu Zhang, Li Niu, Haoyu Ling, Xue Yang, Liqing Zhang ICCV 2021 (CCF-A)

### Awards and Honors

2023	CCF Outstanding Doctoral Dissertation Award (nine winners in China)
2022/2023	World's Top 2% Scientists List
2023	Shanghai Outstanding Graduates
2022	CCF-CV Academic Emerging Scholar (three winners in China)
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	1 <sup>st</sup> Place in WAD2019 Challenge on the D <sup>2</sup> -City & BDD100K Detection Domain Adaption track
2019	3 <sup>rd</sup> /4 <sup>th</sup> Place in DOAI2019 Challenge on the HBB/OBB track
2016-2019	Outstanding Student Leader, Outstanding Student, Second Prize in PMCM (2017)
2012-2016	Outstanding Student Leader, Outstanding Student, Outstanding Graduates, National Inspirational
	Scholarship, Honorable Mention in MCM/ICM (2015), Second Prize in APMCM (2016)

# **Open Source Projects**

All my open source projects on GitHub have accumulated more than 8,000 stars, Some major open source projects are as follow:

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

Github (1.1k 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 (1.6k star): <a href="https://github.com/open-mmlab/mmrotate">https://github.com/open-mmlab/mmrotate</a>

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

#### 3. DetectionTeamUCAS

Github (2.5k star): <a href="https://github.com/DetectionTeamUCAS">https://github.com/DetectionTeamUCAS</a>

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

#### 4. InternGPT

Github (3.0k star): <a href="https://github.com/OpenGVLab/InternGPT">https://github.com/OpenGVLab/InternGPT</a>

InternGPT (iGPT) is an open source demo platform where you can easily showcase your AI models. Now it supports DragGAN, ChatGPT, ImageBind, multimodal chat like GPT-4, SAM, interactive image editing, etc.

# **Tech Report**

W2: Remote Sensing Image Interpretation Valse 2023, Wuxi: <u>High-Precision Detection of Visual</u>
Oriented Object
OpenMMLab Community Forum: Weakly Supervised Oriented Object Detection
PRCV 2022 Doctoral Forum: High-Precision Detection of Visual Oriented Object
OpenMMLab Community Forum: High-Precision Detection of Visual Oriented Object

# 杨学(Xue Yang)

工作单位:浦江国家实验室(上海人工智能实验室) 职务:青年研究员

## 教育背景

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

# 工作经历

<u> </u>		
2023.07~至今	上海人工智能实验室(全职),通用视觉,上海研究 AI 智能体,视觉语言大模型。	上海人工智能实验室 Shanghai Artificial Intelligence Laboratory
2023.02 ~ 2023.07	上海人工智能实验室 (实习), 通用视觉, 上海 研究视觉语言大模型。	上海人工智能实验室 Shanghai Artificial Intelligence Laboratory
2022.02 ~ 2023.01	华为云 (实习), EI 创新孵化实验室, 上海	<b>∜</b> ⊌ HUAWEI
2020.10 ~ 2021.07	研究通用/旋转目标检测。 华为云 (实习), EI 创新孵化实验室, 深圳	<b>∮</b> ∳ HUAWEI
2018.12 ~ 2019.07	研究旋转目标检测。 旷视科技(实习),目标检测组,北京	[MEGVII] 时*初
2017.04 ~ 2017.07	研究目标检测算法。 中国三星电子研究院(实习), 北京	SAMSUNG

# 学术成果

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

引用量:4596

<u>GitHub</u>: <a href="https://github.com/yangxue0827">https://github.com/DetectionTeamUCAS</a>

<u>审稿人</u>: CVPR, ICCV, ECCV, NeurIPS, ICML, ICLR, AAAI, ACM MM; TPAMI, IJCV, TIP, PR, TCSVT, TGRS 文章发表情况: CCF-A/清华-A 类共 20 篇, 其中第一作者论文 14 篇

会议: CVPR/ICCV/ECCV (3/3/1), NeurIPS/ICML/ICLR (2/1/3), AAAI (2), ACM MM (1)

期刊: TPAMI (2), IJCV (1), IEEE Transactions (3)

荣誉: ESI 热点论文(1), ESI 高被引论文(4), 最具影响力论文(2)

#### 博士论文,答辩 PPT,答辩回放

#### 视觉语言大模型

1. Auto MC-Reward: Automated Dense Reward Design with Large Language Models for Minecraft Hao Li\*, **Xue Yang\*** (共同一作), Zhaokai Wang\*, Xizhou Zhu, Jie Zhou, Yu Qiao, Xiaogang Wang, Hongsheng Li, Lewei Lu, Jifeng Dai

主页: https://yangxue0827.github.io/auto mc-reward.html

InternGPT: Solving Vision-Centric Tasks by Interacting with ChatGPT Beyond Language
 Zhaoyang Liu, Yinan He, Wenhai Wang, Weiyun Wang, Yi Wang, Shoufa Chen, Qinglong Zhang, Yang Yang,
 Qingyun Li, Jiashuo Yu, Kunchang Li, Zhe Chen, Xue Yang, Xizhou Zhu, Yali Wang, Limin Wang, Ping
 Luo, Jifeng Dai, Yu Qiao

主页: https://igpt.opengvlab.com/

#### 有向目标检测(部分)

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) (ESI 热点论文, ESI 高被引论文)

4. 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) (ESI 高被引论文)

5. On the Arbitrary-Oriented Object Detection: Classification based Approaches Revisited

Xue Yang, Junchi Yan

IJCV 2022 (CCF-A)

6. 基于特征对齐和高斯表征的视觉有向目标检测

杨学,严骏驰

《中国科学: 信息科学》, 2023 (CCF-T1)

7. H2RBox-v2: Incorporating Symmetry for Boosting Horizontal Box Supervised Oriented Object Detection Yi Yu\*, **Xue Yang\*** (共同一作), Qingyun Li, Yue Zhou, Gefan Zhang, Feipeng Da, Junchi Yan NeurIPS 2023 (CCF-A)

8. H2RBox: Horizontal Box Annotation is All You Need for Oriented Object Detection

**Xue Yang**, Gefan Zhang, Wentong Li, Xuehui Wang, Yue Zhou, Junchi Yan ICLR 2023 (清华 A)

9. The KFIoU Loss for Rotated Object Detection

Xue Yang, Yue Zhou, Gefan Zhang, Jirui Yang, Wentao Wang, Junchi Yan, Xiaopeng Zhang, Qi Tian ICLR 2023 (清华 A)

10. 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)

 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)

12. 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)

13. Dense Label Encoding for Boundary Discontinuity Free Rotation Detection

**Xue Yang**, Liping Hou, Yue Zhou, Wentao Wang, Junchi Yan CVPR 2021 (CCF-A)

14. 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)

15. Arbitrary-Oriented Object Detection with Circular Smooth Label

Xue Yang, Junchi Yan

ECCV 2020 (CCF-B, 清华 A)

16. 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)

17. 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)

18. AlphaRotate: A Rotation Detection Benchmark using TensorFlow

Xue Yang, Yue Zhou, Junchi Yan

ICASSP, 2024 (CCF-B)

19. 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)

 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)

#### 通用目标检测/实例分割

22. PatchDCT: Patch Refinement for High Quality Instance Segmentation Qinrou Wen, Jirui Yang, **Xue Yang**, Kewei Liang ICLR 2023 (清华 A)

23. Rethinking Classification and Localization for Cascade R-CNN Ang Li, **Xue Yang**, Chongyang Zhang

BMVC 2019 (CCF-C)

### 文字检测与识别

Self-supervised Implicit Glyph Attention for Text Recognition
 Tongkun Guan, Chaochen Gu, Jingzheng Tu, Xue Yang, Qi Feng, Yudi Zhao, Wei Shen CVPR 2023 (CCF-A)

 Self-supervised Character-to-Character Distillation for Text Recognition Tongkun Guan, Wei Shen, Xue Yang, Qi Feng, Zekun Jiang, Xiaokang Yang ICCV 2023 (CCF-A)

#### 底层视觉

26. Dual-path Image Inpainting with Auxiliary GAN Inversion Wentao Wang, Li Niu, Jianfu Zhang, **Xue Yang**, Liqing Zhang CVPR 2022 (CCF-A)

 Parallel Multi-Resolution Fusion Network for Image Inpainting Wentao Wang, Jianfu Zhang, Li Niu, Haoyu Ling, Xue Yang, Liqing Zhang ICCV 2021 (CCF-A)

# 获奖荣誉

2023	CCF 优秀博士学位论文奖 (原 CCF 优博,全国共9人)
2022/2023	斯坦福大学评选的全球前2%顶尖科学家榜单
2023	上海市优秀毕业生
2022	CCF-CV 学术新锐学者(全国共3人)
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

本人在 GitHub 上所有的开源项目积累超过了 8,000 多个 star, 一些主要的开源项目如下:

1. AlphaRotate (核心人员): A Rotation Detection Benchmark using TensorFlow

Github (1.1k star): <a href="https://github.com/yangxue0827/RotationDetection">https://github.com/yangxue0827/RotationDetection</a>

AlphaRotate 是第一个基于 TensorFlow 的开源旋转检测工具箱。

### 2. MMRotate (核心人员): A Rotated Object Detection Benchmark using PyTorch

Github (1.6k star): <a href="https://github.com/open-mmlab/mmrotate">https://github.com/open-mmlab/mmrotate</a> MMRotate 是一个基于 PyTorch 的开源旋转检测工具箱。

### 3. DetectionTeamUCAS (核心人员)

Github (2.5k star): <a href="https://github.com/DetectionTeamUCAS">https://github.com/DetectionTeamUCAS</a> 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. InternGPT

Github (3.0k star): <a href="https://github.com/OpenGVLab/InternGPT">https://github.com/OpenGVLab/InternGPT</a>

InternGPT 是一个开源演示平台,目前支持 DragGAN、ChatGPT、ImageBind、SAM、交互式图像编辑、以及像 GPT-4 这样的多模态对话模型等。

## 技术报告

2023.06	Valse 2023 无锡, <u>W2:遥感影像解译</u> : <u>视觉有向目标的高精度检测</u>
2023.03	OpenMMLab 社区开放麦: 弱监督有向目标检测
2022.12	PRCV 2022 博士生论坛: 视觉有向目标的高精度检测
2022.07	OpenMMLab 社区开放麦:视觉有向目标的高精度检测