

Tianhe Ren

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🐙 Github

🌐 Google Scholar

🌐 Homepage

I'm primarily interested in researching **vision foundation models, object detection and segmentation, and multi-modal learning**. I'm also passionate about **open-source projects** in AI community. The research work and open-source projects I'm involved in have garnered almost **20.0K** stars on Github.

Employment History

- 2022 – Now 📌 **Computer Vision Engineer**, International Digital Economy Academy (IDEA), Computer Vision and Robotics Center.
- 2021 – 2022 📌 **Computer Vision Engineer**, OneFlow, Vision Group.

Education

- 2017 – 2021 📌 **Xiamen University**, China.
Bachelor, GPA: 3.59/4.00
Major: School of Information Science and Engineering

Research and Project Highlight

- 2023 - Now 📌 **Grounded-Segment-Anything**: Marrying Grounding-DINO with Segment Anything & Stable Diffusion & Recognize Anything - Automatically Detect, Segment and Generate Anything.
Character: **Project Lead & First Author**
Github Stars: **12.8 K**.
Grounded-SAM combines the strong open-set detector Grounding-DINO with promptable segmentation model (SAM) for detecting and segmenting arbitrary regions with users' textual inputs. **Grounded-SAM** is widely applied in various influenced work such as Florence-2, Emu-Edit, Task-Matrix and so on.
- 2022 – Now 📌 **detrex**: detrex is a research platform for DETR-based object detection, segmentation, pose estimation and other visual recognition tasks.
Character: **Project Lead & First Author**
Github Stars: **1.7 K**.
detrex is a deep-learning library built upon detectron2 and mainly focus on the transformer-based detection algorithms. **detrex** supports over 15 mainstream detection transformer algorithms and further boosts their performance from 0.2 AP to 1.1 AP by optimizing both model and training hyper-parameters.
- 2023 - Now 📌 **Grounding-DINO**: Marrying DINO with Grounded Pre-Training for Open-Set Object Detection
Character: **Main Contributor**
Github Stars: **4.4 K**.
Grounding-DINO combines the strong DINO detector with large-scale grounded pre-training which can detect any regions based on the user inputs.

Research Publications

- detrex: Benchmarking Detection Transformers**
Tianhe Ren*, Shilong Liu*, Feng Li*, Hao Zhang*, Ailing Zeng, Jie Yang, Xingyu Liao, Ding Jia,

Hongyang Li, He Cao, Jianan Wang, Zhaoyang Zeng, Xianbiao Qi, Yuhui Yuan, Jianwei Yang, Lei Zhang.
Tech report, May. 2023

2. **Grounded SAM: Assembling Open-World Models for Diverse Visual Tasks**

Tianhe Ren, Shilong Liu, Ailing Zeng, Jing Lin, Kunchang Li, He Cao, Jiayu Chen, Xinyu Huang, Yukang Chen, Feng Yan, Zhaoyang Zeng, Hao Zhang, Feng Li, Jie Yang, Hongyang Li, Qing Jiang, Lei Zhang

International Conference on Computer Vision (ICCV) Demo Track, 2023

3. **Grounding DINO: Marrying DINO with Grounded Pre-Training for Open-Set Object Detection**

Shilong Liu, Zhaoyang Zeng, **Tianhe Ren**, Feng Li, Hao Zhang, Jie Yang, Chunyuan Li, Jianwei Yang, Hang Su, Jun Zhu, Lei Zhang

Tech report, May. 2023

4. **Detection Transformer with Stable Matching**

Shilong Liu*, **Tianhe Ren***, Jiayu Chen*, Zhaoyang Zeng, Hao Zhang, Feng Li, Hongyang Li, Jun Huang, Hang Su, Jun Zhu, Lei Zhang

International Conference on Computer Vision (ICCV), 2023

5. **A Strong and Reproducible Object Detector with Only Public Datasets**

Tianhe Ren, Jianwei Yang, Shilong Liu, Ailing Zeng, Feng Li, Hao Zhang, Hongyang Li, Zhaoyang Zeng, Lei Zhang

Tech report, Apr. 2023

6. **Cheap and Quick: Efficient Vision-Language Instruction Tuning for Large Language Models**

Gen Luo, Yiyi Zhou, **Tianhe Ren**, Shengxin Chen, Xiaoshuai Sun, Rongrong Ji

Conference on Neural Information Processing Systems (NeurIPS), 2023

7. **You Only Segment Once: Towards Real-Time Panoptic Segmentation**

Jie Hu, Linyan Huang, **Tianhe Ren**, Shengchuan Zhang, Rongrong Ji, Liujuan Cao

Computer Vision and Pattern Recognition (CVPR), 2023

8. **Visual In-Context Prompting**

Feng Li, Qing Jiang, Hao Zhang, **Tianhe Ren**, Shilong Liu, Xueyan Zou, Huaizhe Xu, Hongyang Li, Chunyuan Li, Jianwei Yang, Lei Zhang, Jianfeng Gao

Computer Vision and Pattern Recognition (CVPR), 2024

9. **T-Rex: Counting by Visual Prompting**

Qing Jiang, Feng Li, **Tianhe Ren**, Shilong Liu, Zhaoyang Zeng, Kent Yu, Lei Zhang

Tech report, Nov. 2023

10. **Exploring Vision Transformers as Diffusion Learners**

He Cao, Jianan Wang, **Tianhe Ren**, Xianbiao Qi, Yihao Chen, Yuan Yao, Lei Zhang





Tech report, Oct. 2022

11. **TRAR: Routing the Attention Spans in Transformers for Visual Question Answering**

Yiyi Zhou, **Tianhe Ren**, Chaoyang Zhu, Xiaoshuai Sun, Jianzhuang Liu, Xinghao Ding, Mingliang Xu, Rongrong Ji

International Conference on Computer Vision (ICCV), 2021


Selected Projects

- 2023 - Now  **Grounded-Segment-Anything:** Marrying Grounding-DINO with Segment Anything & Stable Diffusion & Recognize Anything - Automatically Detect, Segment and Generate Anything.
Github Stars: 12.8 K.
-  **Grounding-DINO:** Marrying DINO with Grounded Pre-Training for Open-Set Object Detection
Github Stars: 4.4 K.
- 2022 – 2023  **detrex:** detrex is a research platform for DETR-based object detection, segmentation, pose estimation and other visual recognition tasks.
Github Stars: 1.7 K.
- 2021 - 2022  **LiBai:** A Toolbox for Large-Scale Distributed Parallel Training based on the OneFlow Deep Learning Framework.
Github Stars: 371.

Professional Services

Conference Reviewer  European Conference on Computer Vision (ECCV), 2024

Skills

Programming  Python, \LaTeX

Programming Tools  PyTorch, PyTorch-Lightning, Scikit-Learn, Git, Linux