

# Siwei Yang

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## EDUCATION

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### Tongji University

*Bachelor in Computer Science*

Shanghai

*Sep. 2017 – Jun. 2021*

## EXPERIENCE

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### Visiting Research Assistant

*HKUST, MMLab*

Shanghai

*Jul. 2020 – Present*

- Under Supervision of Prof. Dan Xu.
- Working on **Multi-task Dense Prediction**.

### Research Intern

*MEGVII Research, Base Detection*

Shanghai

*Jun. 2020 – Jun. 2021*

- Participated in the development and maintenance of Cvpods.
- Implemented MEGVII-proposed ThunderNet and CrowdDetRCNN in Cvpods.
- Added various features in Cvpods.
- Deep understanding and rich experience in **Object Detection** and **Semantic Segmentation**.

### Undergraduate Research Assistant

*Tongji University*

Shanghai

*Feb. 2019 – Jun. 2021*

- Worked on semantic segmentation with satellite images under the supervision of Prof. Yin Wang.
- One paper published at **CVPR2020** Workshops.
- **Best undergraduate** award at **NeurIPS2020** Workshops (Team leader).

## PUBLICATIONS

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**Siwei Yang**, Hanrong Ye, Dan Xu. In submission to *European Conference on Computer Vision 2022 (ECCV2022)*.

**Siwei Yang\***, Shaozuo Yu\*, Bingchen Zhao\*, Yin Wang. **Reducing the feature divergence of RGB and near-infrared images using Switchable Normalization** *IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops 2020 (CVPRW2020)*. (\* means equal contribution)

## PROJECTS

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### Cvpods

[github.com/Megvii-BaseDetection/cvpods](https://github.com/Megvii-BaseDetection/cvpods)

A versatile and efficient codebase for multiple computer vision tasks: classification, segmentation, detection, keypoints, self-supervised learning, etc. The aim of Cvpods is to achieve **efficient experiments management** and **smooth task-switching**.

- Added various features: OHEM, Soft-NMS, Cluster-NMS, Dataset registering, Visualization, etc.
- Added various models: ShuffleNet, SNet, ThunderNet, CrowdDetRCNN, etc.
- Built CI from scratch including linting, unit test and model training.

### AgriVision

[github.com/LAOS-Y/AgriVision](https://github.com/LAOS-Y/AgriVision)

Code for AGRICULTURE-VISION 2020 (CVPRW 2020). Various backbones(ResNet, IBN-Net, ResNeXt) and decoders(UNet, DlinkNet, FPN, DeeplabV3+) are supported. Final ranking at the **8th place**. One workshop paper published at **CVPRW2020**.

- Implemented features including AMP, multi-GPU training, solver, data augmentation, etc.
- Added support for various models and loss functions.
- Designed and conducted part of the validation experiments.
- Summarized our work into the published paper.

### Real-time Ray Tracer

[github.com/LAOS-Y/OpenGL-RayTracer](https://github.com/LAOS-Y/OpenGL-RayTracer)

A solar system rendered by ray-tracing using **C++** and **OpenGL**. Uses **Compute Shader** written in **GLSL** for RT calculation. Moving planets with multiple textures and materials, and an user-control camera are included.

### 2-Stage EGFR

[github.com/LAOS-Y/2Stage-EGFR](https://github.com/LAOS-Y/2Stage-EGFR)

A 2-stage lung cancer classifier based on CT images using Pytorch. An one-stage nodule detector with FPN outputs bboxes of nodules. Bbox-cropped CT patches of nodules are fed to a classifier for further analysis.

## ACADEMIC ACHIEVEMENTS AND AWARDS

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<b>Best Undergraduate</b> in <b>NeurIPS2020</b> SpaceNet7 Challenge.	2020
<b>No.8</b> out of 39 teams in <b>CVPRW2020</b> Agriculture-Vision Challenge Track.	2020
<b>No.27</b> out of 134 teams in CCF Multi-race Face Recognition Challenge.	2019
<b>Third price</b> at Tongji University Programming Contest.	2018
<b>Second prize</b> at National Olympiad in Informatics in Provinces.	2015