

# Zhiyuan Yang

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Address

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## Education

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### Beihang University

M.Sc. in Electrical Engineering

- Supervisor: Prof. Jinping Sun
- GPA: 3.7/4.0 (Top 5%)

Beijing, China  
2022.9~2025.6(Expected)

### Beihang University

B.Sc. in Electrical Engineering

- GPA: 3.7/4.0 (Top 10%)

Beijing, China  
2018.9~2022.6

## Honors

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### Freshman Scholarship of Beihang University

Top 5%

2022

### The First Prize Scholarship of Beihang University

Top 20%

2023,2022

## Publication

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### Article

[1] **Yang, Z.**, Li, X., Yao, X., Sun, J., & Shan, T. (2023). Gaussian Process Gaussian Mixture PHD filter for 3D multiple extended target Tracking. Remote Sensing (**JCR Q1, TOP**), 15(13), 3224.

[\[Link\]](#) [\[Code\]](#)

[2] **Yang, Z.**, Zhang, B., Shi, Y., et al. (2024). ETSCCL: An Evidence Theory-Based Supervised Contrastive Learning Framework for Multi-modal Glaucoma Grading. Ophthalmic Medical Image Analysis Workshop at MICCAI 2024 (**Accepted**) [\[Arxiv\]](#) [\[Code\]](#)

[3] **Yang, Z.**, Zhang, B., Zeng, Z., & Yeo, S. Y. (2024). Edge-guided and Cross-scale Feature Fusion Network for Efficient Multi-contrast MRI Super-Resolution. International Conference on Pattern Recognition (ICPR 2024) (**Under Review**) [\[Arxiv\]](#) [\[Code\]](#)

### Patent

[1] Liu C, **Yang Z**, Sun J, et al. System and a Method for Tracking Multiple 3D Extended Targets Based on Multiple Hypothesis Tracker[P]. CN117214857. 2024

## Work Experience

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[E Fund Management](#) (Largest Fund Manager in China), AI R&D Team

Research Intern (Financial LLM)

2024.5~now

[China Mobile Research Institute](#) (Fortune Global 500), AI R&D Center

Research Intern (Computer Vision)

2023.6~2023.9

## Project

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### MRI Super-Resolution Based on Deep Learning

Project with Prof. [Yeo Si Yong](#) (Nanyang Technological University)

**Index:** Transformer, Super-resolution, Multi-scale Fusion

- We propose an Edge-guided and Cross-scale Feature Fusion Network for Multi-contrast MRI Super-Resolution considering the previously neglected multi-scale similarities in MRI.
- The cross-domain transformer is employed to transfer texture information from reference images.

2023.10~2024.5

- Extensive experiments on the BraTS2020 and IXI datasets demonstrate that the proposed method achieves state-of-the-art performance.
- Submitted to ICPR2024.

### **Object Detection and Tracking Based on Deep Learning**

2023.6~2023.9

*Intern at CMRI*

**Index:** YOLO, Faster R-CNN, Key Frame Extraction

- Improve deep learning models like YOLO v3 and Faster R-CNN for object detection on custom datasets. Both accuracy and recall rate are above 0.85.
- Propose a multiple object tracking (MOT) algorithm based on the keyframe extraction and compare the method with other MOT methods like DeepSORT.

### **3D Extended Target Tracking using Gaussian Process**

2022.6~2023.5

*Master Thesis Supervised by Prof. Jinping Sun*

**Index:** Gaussian Process, Kalman Filter, Bayesian Statistics Learning

- We propose to use the Gaussian process to estimate the shape of multiple objects in the form of radar points.
- We integrate the GP regression shape model with the Bayesian multiple target tracking framework.
- Synthetic experiments demonstrate that the IoU is improved by 10% compared to SOTA.
- Work has been published in Remote Sensing (Q1) and one Chinese patent has been granted.

## **Skills**

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- **Program Language:** MATLAB, Python, LaTeX, Git, Linux(proficient), C(know),
- **Deep Learning:** Pytorch, Numpy (proficient)
- **Math:** Good knowledge of Stochastic Process/Probability Theory/Statistics
- **Language:** IELTS 8.0(8.5/8.5/7.0/7.0)