YIMING YANG

Bayonne, NJ 22262010047@m.fudan.edu.cn (+1) 862-215-9466

EDUCATION

Fudan University (Part-time) *Sept. 2022 – Jun. 2025*
MS in Software Engineering. *Shanghai, China*

University of Southampton *Sept. 2015 – Nov. 2016*
MS in Wireless Commumication. *Southampton, UK*

De Montfort University (Exchange Program) *Aug. 2014 – Jun. 2015*
BE in Electronic Engineering. *Leicester, UK*

Jinling Institute of Technology *Sept. 2011 – Jul. 2014*
BE in Commumication Engineering. *Nanjing, China*

RESEARCH INTERESTS

Open World Object Detection and Recognition, Multimodal Video Understanding, Generative AI for Visual Understanding, Embedded and Efficient AI Systems.

RESEARCH EXPERIENCE

Feature Augmentation Strategies for Long-tailed Object Detection *Jul. 2025 – Present*
Project Leader | Advisor: Prof. Feng Guo in Shandong University *Remote*

- Proposed a Tail-Diffusion Feature Augmentation module that applies a noise–denoise consistency process on query features to enhance the representation quality of tail categories.
- Developed a Tail-aware Dynamic Matching strategy that adaptively increases positive assignments for extreme tail classes during bipartite matching.
- Boosted tail-class AP by at least 1.0% while preventing performance degradation on head classes.

Redesigning Object Detection Networks for UAV-Based Applications *Apr. 2025 – Jun. 2025*
Project Leader | Advisor: Prof. Feng Guo in Shandong University *Remote*

- Investigated limitations of traditional CNN backbones in feature extraction under cluttered and noisy scenes, identifying performance drops for small and occluded objects.
- Designed a real-time object detection framework by integrating CNN and Mamba architectures, incorporating fine-grained feature preservation mechanisms and global context enhancement modules.
- Achieved significant performance gains on the VisDrone dataset, with +4.5% mAP improvement and 84.9% reduction in parameter count compared to baseline models, while maintaining comparable FPS.

Small Object Detection Based on Global and Local Feature Enhancement *May. 2024 – Dec. 2024*
Project Leader | Advisor: Prof. Xiangyang Xue in Fudan University *Shanghai, China*

- Mitigated small object feature loss from downsampling by cascading feature layers and enhancing cross-layer interactions on YOLOv8s, leveraging local feature information to improve detection accuracy for small targets.
- Enhanced model robustness by combining Transformer-based global context with convolutional features using adaptive fusion, balancing local and global information across diverse environments.
- Achieved 1% mAP gain across multiple small object datasets, validating the effectiveness of the proposed methods in improving detection performance.

Wave Pattern Classification in Molten Steel Using Deep Learning *Jun. 2023 – Sept. 2023*
Project Leader | Co-worker: Dr. Fuchun Cai in Shenku Inc. *Shanghai, China*

- Conducted a systematic evaluation of instance segmentation approaches (YOLACT, BlendMask, etc.), demonstrating performance differences across methods and achieving 90% mIoU, supporting more reliable wave pattern monitoring in industrial processes.
- Leveraged spatiotemporal feature extraction models (SlowFast, TPN) for video-based waveform analysis, and validated feasibility for deployment in industrial monitoring systems.

PAPER

Yang, Y., Guo, F., & Niu, P. (2026). UAVDet: A CNN-Mamba hybrid network for efficient small object detection in UAV imagery. Computer Vision and Image Understanding, 104637.

WORK EXPERIENCE

Shenku Inc. *Mar. 2022 – Feb. 2024*
Machine Learning Engineer *Shanghai, China*

- Developed and optimized SOAT-based methods for diverse tasks (classification, detection, segmentation), with 10+ models deployed in real-world applications achieved over 90% accuracy.
- Implemented model pruning, TensorRT acceleration, and processed pipeline refinement to achieve real-time inference, achieving 40% reduction in model parameters, 2× faster inference.
- Investigated cutting-edge research in computer vision, including Transformer-based models, and conducted systematic testing and comparisons on current projects to assess potential for production deployment.

Deepblue Inc. *Jan. 2019 – Apr. 2021*
Implementation Engineer *Shanghai, China*

- Directed end-to-end on-site deployment and integration of AI-driven monitoring systems, validating real-time anomaly and target recognition, and achieved the successful delivery of 5+ industrial projects.
- Conducted on-site feasibility studies and risk evaluations, creating actionable deployment plans that reduced integration risks and accelerated project delivery.
- Regularly maintained deployed AI systems, troubleshot and resolved customer-reported issues within 24 hours, ensuring >99% system uptime.
- Documented recurring issues and practical experiences, transforming them into reusable best practices that improved deployment efficiency by 20%.

DS Inc. *Nov. 2016 – Dec. 2018*
Delivery Engineer *Shanghai, China*

- Delivered 3 large-scale million-dollar public security dispatch systems for overseas projects in Africa, and trained 100+ end users with a 98% customer satisfaction rate, while producing detailed technical documentation to ensure long-term system stability.
- Spearheaded the maintenance and optimization of Linux-based development and testing environments for overseas products, improving product development efficiency by 30% and reducing project costs by 5%.

PROJECTS

Surface Defect Detection System *Aug. 2023 - Nov. 2023*

- Enhanced YOLOv5 for defect detection by adding attention modules and redesigning the detection head, iteratively optimizing the model to achieve >90% detection rate, improving both accuracy and robustness.
- Tools used: Python, OpenCV

Automated Production Monitoring System *Mar. 2023 - Jun. 2023*

- Developed multiple recognition and segmentation models for steel slab production monitoring, enabling real-time anomaly detection, with precision exceeding 98% and 10% improvement in operational efficiency.
- Tools used: Python, C++, SQL, FFmpeg

Slab Number Recognition System *Oct. 2022 - Dec. 2022*

- Utilized generated data and diverse augmentation strategies (noise, blur, lighting, geometric transformations) to fine-tune the model, and achieved >95% on-site recognition accuracy.
- Tools used: Python, OpenCV

SKILLS

5 years of programming experience, proficient in *Python, C++, Matlab, Pytorch, Tensorflow, Scikit-Learn, Keras.*