

GUAN CONG

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Waseda University, Japan

Oct. 2023 – Mar. 2028

Ph.D. Candidate in Computer Science

Nanjing University, China

Sep. 2021 – Jun. 2023

M.S. in Software Engineering, GPA: 3.6/4.0

Southeast University, China

Sep. 2016 – Jun. 2020

B.S. in Software Engineering, GPA: 3.8/4.0

SELECTED ACADEMIC PUBLICATIONS

Dual-Camera Super-Resolution via Domain Modulation and Multi-scale Efficient Matching

Accepted, WACV 2026

First Author

- Proposed a dual-camera super-resolution framework that enhances wide-angle images using telephoto references. Introduced a multi-scale block matching strategy and domain modulation module. Achieved state-of-the-art performance on real-world datasets with pruning and lightweight domain adaptation.

CLIP-driven Rain Perception: Adaptive Deraining with Pattern-aware Network Routing and Mask-guided Cross-Attention

Accepted, Elsevier Pattern Recognition

First Author

- Proposed CLIP-RPN, a CLIP-driven deraining framework with rain-pattern-aware subnet selection and MGCA cross-attention. Introduced Dynamic Loss Scheduling (DLS) to handle complex mixed-rain conditions, achieving state-of-the-art performance on multiple benchmarks.

ROD-YOLO: A Fast and Accurate Obstacle Detection Framework for Railways

Accepted, IEICE Transactions on Information and Systems

First Author

- Enhanced YOLOv8 with Feature Enhancement Module (FEM), improved spatial pyramid pooling (SPPCSPC-F), and LSK attention. Achieved +7.93% mAP50 gain and 72.42% faster inference while maintaining lightweight parameters, showing robustness across COCO and KITTI benchmarks.

ARM: nnU-Net with Arena Mechanism for Medical Image Segmentation

ICASSP 2025

Co-First Author

- Designed a three-stage segmentation framework combining SCConv and ConvNeXt, integrating multiple loss functions and attention mechanisms to significantly improve medical image segmentation accuracy.

WORK EXPERIENCE

Sony Semiconductor Solutions Group

Sep. 2025

RD Intern (Computer Vision)

- Participated in a 3-week on-site internship focused on camera ISP algorithms, including demosaicing and denoising.
- Explored robust learning strategies under variable noise conditions to enhance model generalization.
- Investigated one-step RAW-to-SR RGB generation using generative models to integrate demosaicing, denoising, and super-resolution.

Sony R&D Center (China Laboratory)

May 2025 – Aug. 2025

Research Intern (Computer Vision)

- Conducted research on image and video super-resolution using flow matching and diffusion-based generative models.
- Explored prior work and implemented experiments to evaluate accuracy, speed, and generalization.
- Contributed to research direction planning and performance analysis for ongoing projects.

Amazon Web Services (AWS)

Sep. 2023 – Sep. 2024

Machine Learning Engineer

- Developed a sparse coding-based semantic embedding model enabling local semantic search without GPUs.
- Designed a two-stage retrieval pipeline achieving 5–8× acceleration in query speed.
- Built CI/CD workflows for model deployment and optimized Lucene columnar indexing via quantization and bitset compression.

D5 Render

Jun. 2021 – Sep. 2021

3D Software Engineer

- Developed a plugin connecting Rhino with D5 Render using RhinoSDK for real-time geometry, texture, and lighting synchronization.
- Implemented incremental updates supporting large-scale architecture workflows; adopted globally in commercial releases.

SKILLS

- **Languages:** Native Chinese; Business-level English and Japanese
- **Deep Learning:** Experienced with PyTorch, diffusion models, and computer vision tasks (SR, generation, restoration)
- **Engineering:** Skilled in backend development, infrastructure, and database operation
- **Programming:** Proficient in Python, C++, and Java