Zhen Guo

Shaanxi, China

 Personal Website   ✉ guozhen2022@mail.nwpu.edu.cn   **G** GoogleScholar   ⓘ OCRID

EDUCATION

Northwestern Polytechnic University (NWPU), Taicang, Jiangsu, China   Sept. 2022 — Jun. 2025 (Expected)
Master of Science in Electronic and Information Engineering   GPA: 3.4/4.0
Supervisor: Associate Professor Hongping Gan
Northwestern Polytechnic University (NWPU), Xi'an, Shaanxi, China   Sept. 2018 — Jun. 2022
Bachelor of Science in Software Engineering   GPA: 3.4/4.0

ACADEMIC PAPERS

- **Zhen Guo** and Hongping Gan. CPP-Net: Embracing Multi-Scale Feature Fusion into Deep Unfolding CP-PPA Network for Compressive Sensing. In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2024, pp. 25086-25095. ∂
- Hongping Gan, **Zhen Guo** and Feng Liu. NesTD-Net: Deep NESTA-Inspired Unfolding Network With Dual-Path Deblocking Structure for Image Compressive Sensing. IEEE Transactions on Image Processing, 33:1923-1937, 2024. ∂

RESEARCH EXPERIENCE

Deep Unfolding Networks for Compressive Imaging   2022 — Present
Intelligent Information Processing Lab, NWPU

- Contributed as a key researcher in developing deep unfolding networks (DUNs) for compressive imaging tasks, focusing on modeling and solving inverse imaging problems.
- Identified critical limitations in current DUNs, including intra- and inter-stage information loss, uniform optimization structures, and scales, as well as detail loss at low sampling ratios. Conducted comprehensive experiments, data collection, and analysis to substantiate findings.
- Innovated multi-scale feature extraction and fusion modules, multi-phase feature integration mechanisms, and optimized information transfer strategies between iterative stages by converting the iterative steps of traditional optimization algorithms (CP-PPA, NESTA, Split Bregman, ISTA, ADMM, etc.) into cascaded modules.
- Evaluated proposed methods through extensive experiments and discussions across compressive imaging tasks, including image compressive sensing (ICS), CS magnetic resonance imaging (CS-MRI), and snapshot compressive imaging (SCI).
- Achieved precise image detail recovery even at low sampling ratios, significantly improving the quality (PSNR and SSIM) and perceptual accuracy (LPIPS) of reconstructed images under different tasks and achieve state-of-the-art performance.
- Authored four papers: two published and two under review.

Humanoid Robotics Competitions   2019 — 2021
Humanoid Robot Group, NWPU

- Contributed as a member of the Software Group, developing algorithms in C++ using CMake in ROS for Darwin OP2 and OP3 robots, focusing on competition tasks.
- Achieved notable success in various robotics competition tasks, including basketball shooting, soccer, and boxing, demonstrating strong problem-solving and teamwork skills.

AWARDS

- Outstanding Graduation Thesis   Jun. 2022
- RoboCup China Open Humanoid Robot First Prize   Nov. 2020
- The First Prize Scholarship   Dec. 2018

SKILLS

- **Language**: CET6: 509; IELTS: in preparation
- **Programming:** Python, Java, C++, R
- **Software:** Linux, Visio, Origin, ImageJ, VSCode, vim, etc.