

SHANGQING TONG

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🎓 EDUCATION

ShanghaiTech University, Pudong, Shanghai, China 2021 – Present

Master student in Electronics Engineering (EE), expected March 2024

Jiangnan University, Wuxi, Jiangsu, China 2017 – 2021

B.S. in Communication Engineering

👤 PUBLICATIONS

Photoacoustic Tomography Reconstruction with Score-based Diffusion Models

IEEE Transactions on Medical Imaging, IF 10.6, Under Review

Co-first Author Collaborated with Dr. Hengrong Lan, Department of Biomedical Engineering, School of Medicine, Tsinghua University

Reconstructing photoacoustic tomography images with score-based diffusion models.

- Trained with only ground truth images, our method achieved competitive performance against supervised U-Net, while ours has higher generalization capability;
- A constraint is designed following the rotation equivariance between PAT measurements and images, which is used to guide the Langevin sampling process;
- Our method achieved 35.06 PSNR, 0.913 SSIM in uniform sampling with 32 measurements; and 29.69 PSNR, 0.823 SSIM in limited view with 32 measurements (128 in total).

Review of Deep Learning Applications in Photoacoustic Imaging

Journal of Biomedical Optics, IF 3.5, Under Review

Co-first Author Collaborated with Hybrid Imaging System Laboratory, ShanghaiTech University

A brief review of deep learning applications in photoacoustic imaging among recent years.

Assessing the Mortality Risk of Critically Ill Patients with Deep Learning

Reviews in Cardiovascular Medicine, IF 2.7

Co-first Author Collaborated with Department of Critical Care Medicine, Zhongshan Hospital, Fudan University

The aim of this study was to assess the mortality risk of critically ill patients at risk of hypoperfusion in a prospective cohort by infrared thermography combined with deep learning methods.

- Compared the classification capability of several widely used vision backbones;
- Combined conventional cross-entropy loss with focal loss and label smoothing, which further improved the performance on the imbalanced dataset.

Classification of Benign and Malignant Colorectal Tissue with AR-PAM

2022 IEEE International Ultrasonics Symposium, Oral Presentation

Co-first Author Collaborated with the First Medical Centre, Chinese PLA General Hospital

Classifying the benign and malignant tissues using wavelet transform of the PAM signals.

- Signals of cancer, polyp and normal tissues were obtained by scanning the *ex-vivo* colorectal samples;
- Classify the cancer and normal regions with wavelet transform.

⚙️ SKILLS

- Research Interests
 - Solving inverse problems in medical imaging with generative models,
 - Self-supervised representation learning and other pre-training methods,
 - Computer vision in biomedical applications;

- Platform: Linux
- Programming Languages: Python, MATLAB, \LaTeX ;
- DL framework: PyTorch > JAX

♡ HONORS AND AWARDS

Graduate Scholarship of ShanghaiTech University

Nov. 2021, Nov. 2022

❖ MISCELLANEOUS

- Google Scholar: <https://scholar.google.com/citations?user=-TaP8h4AAAAAJ&hl=zh-CN>
- GitHub: <https://github.com/noeltong>
- Languages
 - English - Fluent (CET-4 610, CET-6 509)
 - Mandarin - Native speaker