

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

PAT Reconstruction with Score-based Diffusion Models TMI 2023, Under Review

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

Reconstructing photoacoustic tomography images with diffusion-based generative models.

- Trained with only gray 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).

Assessing the Mortality Risk of Critically Ill Patients with Deep Learning RCM 2023

Co-first Author Cooperated 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 IUS 2022, Oral

Co-first Author Cooperated 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 with generative models, 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=-TaP8h4AAAAJ&hl=zh-CN>
- Languages: English - Fluent (CET-4 610, CET-6 509), Mandarin - Native speaker