

# XUANYU TIAN

(+86) 181-0865-4596 ◊ Shanghai, China

tianxy@shanghaiitech.edu.cn ◊ [Website](#) ◊ [Google Scholar](#)

## EDUCATION

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### ShanghaiTech University

Sep. 2021 - Exp July 2024

*M.Sc. Computer Science*, GPA 3.70/4 (Major: 3.70/4); Advisor: [Prof. Yuyao Zhang](#)

Core Courses: Deep Learning, Medical Image Processing and Analysis, Digital Image Processing

### Wuhan University of Technology

Sep. 2017 - July 2021

*B.E. Computer Science and Technology*, GPA 4.12/5

## RESEARCH INTERESTS

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• My research interests lie in the field of **medical image processing** and **computational imaging**, from the perspective of **self-supervised image restoration**, **implicit neural representation** and **inverse problem solving**.

## PROJECTS

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- **Self-supervised Denoising for Biomedical Images**<sup>[1][2]</sup> July 2021 - present  
*Project Leader: Investigation, Conceptualization, Methodology, Experimenting, Writing*
  - Proposed a self-supervised image denoising framework Noise2SR to train an effective image denoising model based on single noisy observation without noise modeling.
  - Theoretical proved that a denoised image can be generated from a sub-sampled noisy image using whole noisy image supervision which is equivalent to using clean signal as supervision.
  - Experiment results show that Noise2SR outperforms SOTA self-supervised denoising methods (Noise2Self, Neighbor2Neighbor) in real fluorescence microscopy and MRI image noise removal.
- **Zero-shot Learning for High Resolution Electron Microscopy Image Denoising**<sup>[3]</sup> Jan 2022 - present  
*Project Leader: Investigation, Conceptualization, Methodology, Experimenting, Writing*
  - Proposed a zero-shot learning self-supervised denoising framework for noisy HREM images.
  - Outperformed self-supervised SOTA zero-shot methods (Self2Self, FBI-Denoiser) in ultra-low SNR HREM image scenarios.
- **Limited Angle CT reconstruction using Diffusion Models** Nov 2022 - present  
*Project Leader: Investigation, Experimenting, Writing*
  - Combine Physical-guided reconstruction methods with diffusion models.

## PUBLICATIONS

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- [1] **Noise2SR: Learning to Denoise from Super-Resolved Single Noisy Fluorescence Image** [\[Paper\]](#)  
**Xuanyu Tian**, Qing Wu, Hongjiang Wei, Yuyao Zhang
  - Accepted by *MICCAI 2022*
- [2] **Self-Supervised High-dimensional Magnetic Resonance Image Denoising using Super-Resolved Single Noisy Image**  
Changhao Jiang 1\*, **Xuanyu Tian** 1\*, Yanbin Li, Jiangjie Wu, Xin Mu, Lei Zhang, Yuyao Zhang
  - Accepted by *IEEE ISBI 2023*
- [3] **Zero-shot Learning for High-Resolution Electron Microscopy Image Denoising**  
**Xuanyu Tian**, Zhuoya Dong, Xiyue Lin, Yanhang Ma, Yuyao Zhang
  - Submitted to *IEEE Transactions on Computational Imaging*

## TEACHING EXPERIENCE

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### Teaching Assistant

ShanghaiTech University

*Delivering tutorials; Designing projects, assignments, and quizzes; Grading homework and exams;*

· CS270B: Advanced Digital Image Processing

2023 Spring

## ADDITIONAL

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- Programming: Python, MATLAB
- Languages: Chinese (Native), English (Fluent)
- Framework: PyTorch