Chao Tan

Daejeon, Korea | E-mail | Personal Website
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Profile

Master's student at KAIST with a strong publication record in computational imaging. My current research focuses on developing advanced algorithms and optical systems—including Fourier ptychography and diffraction tomography enhanced by deep learning techniques—to solve challenging 3D imaging problems. I am seeking a Ph.D. position to pioneer next-generation computational imaging techniques combining AI and optical physics for industrial and biomedical applications.

Education

Korea Advanced Institute of Science and Technology *Sept 2024 – Jun 2026 (Expected)*
Master of Science in Bio and Brain Engineering

- **Advisor:** Prof. Mooseok Jang
- **Research Field:** Computational imaging, Optical imaging, Microscopical imaging
- **Selected Courses:** Computational Biomedical Optics, Machine Learning for 3D Data, Interactive Computer Graphics

Sichuan University *Sept 2020 – Jun 2024*
Bachelor of Engineering in Optoelectronic Information Science and Engineering

- Major in Architecture (Sept 2020 - Jun 2021)

- **GPA:** 3.61 / 4.0 (Compulsory Courses: 3.68 / 4.0)

Selected Awards

KAIST International Student Scholarship *2024 - 2026*

- Full tuition coverage + monthly living stipend

First Prize for Outstanding Undergraduate Thesis *2024*
Sichuan University, College of Electronics and Information Engineering

- **Thesis:** Research on Computer-generated Holography and Fourier Ptychographic Microscopy Based on Diffraction Calculation
- Ranked among the top 3 theses in the college

Science Innovation Program - Key Project *2023*
Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences

- **Project:** Depth-of-Field Extension via Fourier Ptychography
- Awarded ¥20,000 as top-tier competitive grant

Publications

(† indicates equal contribution; ✉ indicates corresponding author.)

[1] N. Chen†✉, Y. Wu†, **Chao Tan**, L. Cao, J. Wang✉, and E. Y. Lam✉, "Uncertainty-aware Fourier ptychography", *Light: Sci. Appl.*, **14**(1), 236 (2025).

[2] F. Xu, Z. Wu, **Chao Tan**, Y. Liao, Z. Wang, K. Chen, and A. Pan✉, "Fourier ptychographic microscopy 10 years on: a review", *Cells*, **13**(4), 324 (2024).

[3] **Chao Tan**, J. Wang✉, Y. Wu, J. Zhou, and N. Chen, "Fast scaled cylindrical holography based on scaled convolution", *Displays*, **81**, 102619 (2024).

[4] W. Zhang, J. Wang✉, **Chao Tan**, Y. Wu, Y. Zhang, and N. Chen, "Large field-of-view holographic Maxwellian display based on spherical crown diffraction", *Opt. Express*, **31**(14), 22660–22670 (2023).

Conferences

Chao Tan, M. Jang✉, "Robust Fourier ptychographic tomography via feature domain", *SPIE ABC 2025*

Experience

Research Assistant: Computational Microscopical Imaging *Aug 2024 – Present*
Mooo Research Group, KAIST *Daejeon, Korea*

- Advanced research on 3D computational imaging by implementing and comparing algorithms for intensity diffraction tomography (IDT) and Fourier ptychographic tomography (FPT)
- Independently designed and built an off-axis holographic microscope

Research Intern: Computational Microscopical Imaging *Feb 2024 – Jun 2024*
Information Display Institute, Sichuan University *Chengdu, China*

- Contributed to the development of a novel differentiable reconstruction framework for FPM, which automated parameter tuning and improved reconstruction fidelity

Research Intern: Computational Microscopical Imaging *Jul 2023 – Jan 2024*
Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences *Xi'an, China*

- Authored the 3D imaging section of a comprehensive review on Fourier ptychography

Research Intern: Computer-generated Holograms *Jul 2022 – Jul 2023*
Information Display Institute, Sichuan University *Chengdu, China*

- Proposed a fast calculation algorithm for scaled cylindrical holography using scaled diffraction in Python

Skills

Languages: English – Fluent (IELTS 7), Mandarin – Native speaker
Programming Languages: Python, Matlab, LaTeX
Software & Tools: Zemax, SolidWorks, Blender
Hardware: Raspberry Pi