

LING ANDY ZHANG

UTS Tech lab, 32/34 Lord St, Botany NSW 2019

+61) 0404410537 ◊ 13456963@student.uts.edu.au ◊ <https://sites.google.com/site/lbppo95/home>

EDUCATION

University of Technology Sydney (UTS)

Ph.D., Electrical and Data Engineering

Research Area: Computational Optical Imaging, Optical trapping

Advisor: Prof.David McGloin, Dr.Fan WANG, Dr.Qian Peter SU

Sydney, Australia

Aug. 2019 - Ongoing

University of Chinese Academy of Sciences (UCAS)

M.S., Optical Engineering

Research Area: Computational Optical Imaging, Adaptive Optics

Advisor: Prof.Hui ZHAO

Beijing, China

Aug. 2016 - Jul. 2019

Xi'an Technological University (XATU)

B.E., Measurement and Control Technology and Instruments (Excellence)

Advisor: Prof.Lingxia HANG

Xi'an, China

Aug. 2012 - Jul. 2016

PROFESSIONAL EXPERIENCES

Southern University of Science and Technology (SUSTech)

Visiting Scholar

Research Area: Computational Optical Imaging , Biophotonics

Shenzhen, China

Jul. 2019 - Aug. 2019

Xi'an Institute of Optics and Precision Mechanics of CAS (XIOPM)

Research Assistant

Research Area: Computational Optical Imaging, Wave-front Sensing

Xi'an, China

Aug. 2017 - Jun. 2019

RESEARCH EXPERIENCES

[1]. Optofluidics System to Analyse Dynamic Aerosol Processes, UTS *Sep. 2020 - Ongoing*

- Development of a model of the light-matter interaction of optically trapped aerosols and its application to building novel, real-world, aerosol analysis instrumentation
- Development of an 'aerofluidic' chip architecture for aerosol analysis that utilises state-of-the-art complex photonics and optical trapping within a microfluidic framework produced using rapid prototyping techniques
- Validate the aerofluidic chip via the analysis of outstanding, real world, aerosol challenges involving the phase change dynamics of secondary organic aerosol and its ability to form ice nuclei

[2]. Compact Computational Raspberry Pi microscope, UTS *Aug. 2019 - Aug. 2020*

- Imaging, optics, and signal processing are main of this project. I will introduce possibilities of low-cost, portable, high quality, computational imaging systems, through the development of in-house optics and imaging systems for multiple applications
- With the above disciplines, I am capable of and passionate about jointly designing the optics and algorithm altogether in order to extract the most information out of an imaging system
- This proposed imaging device may not only enable certain diseases diagnosis, but it also could be an user-friendly tool for educational uses

[3]. **Space Camera High Resolution Reconstruction Project, UCAS** *Jul. 2017 - Jul. 2019*

- Building a mathematical model to achieve high resolution image reconstruction
- Linear processing was conducted in the cost function to improve the reconstruction rate
- Improving the optimization algorithm and introducing the NLM algorithm to improve the accuracy and resolution of the restored image
- This mathematical model was applied on the actual ground-based telescope to verify its effectiveness and accuracy

[4]. **Faint Object Reconstruction Project, UCAS** *May. 2018 - Jun. 2018*

- Building and debugging ground-based telescope systems for outfield experiments
- Applying the modified phase diversity technique to achieve high quality reconstruction on the distorted moon images and the weak light objects acquired by the ground-based telescope

RESEARCH INTERESTS

Optical Trapping :	Single fiber trapping, Dual fiber trapping, On-chip trapping
Computational Optical Imaging :	CDI, FPM, Lens-free Imaging
Image Processing Technology :	Image Restoration, High-Resolution Image Reconstruction
Adaptive Optics :	Wave-front Sensing, Phase diversity

HONORS AND DISTINCTIONS

2020 — Research Student Satisfaction Survey Award	UTS, Australia
2019 — International Research Scholarship	UTS, Australia
2019 — UTS President's Scholarship	UTS, Australia
2019 — CSC PhD Oversea Scholarship	CSC, China
2018 — National Scholarship for Graduate Student	UCAS, China
2018 — Annual Excellent Graduate student	XIOPM, China
2018 — Excellent Student Cadre	UCAS, China
2018 — Merit Student	UCAS, China
2017 — Merit Student	UCAS, China
2014 — Third Prize of National College English Contest	NECCS, China
2012 - 2016 — Academic Scholarships (Six times)	XATU, China

PROFESSIONAL ACTIVITIES

- SPIE Student member 2019 – present
- OSA Student member 2019 – present
- IEEE Student member 2020 – present

STRENGTHS AND SKILLS

Environments	Mac OS X, Windows
Programming Languages	Matlab, Python, C/C++
Software & Tools	MS Office, LaTeX, Adobe, AutoCAD, Solidworks, Inkscape
Language	Native in Madarin, Proficiency in English

PUBLICATIONS

1. Yu C, Zhao H, Zhang L, et al. **High-resolution imaging of space target based on compressed sensing**[C]//*Eleventh International Conference on Digital Image Processing (ICDIP 2019)*. International Society for Optics and Photonics, 2019, 11179: 111793U.
2. Zhao H, Xia J, Zhang L, et al. **Improved vector extrapolation based Richardson-Lucy algorithm used for wavefront coded imaging and experimental demonstration**[C]//*Digital Optical Technologies 2019. International Society for Optics and Photonics*, 2019, 11062: 110621B.
3. Zhao H, Xia J J, Zhang L, et al. **Improved vector-extrapolation-based Richardson-Lucy algorithm used for wavefront coded imaging**[J]. *Applied optics*, 2019, 58(13): 3630-3638.
4. Zhang L, Zhao H, Yi H, et al. **Modified phase diversity technique to eliminate Poisson noise for reconstructing high-resolution images**[C]//*9th International Symposium on Advanced Optical Manufacturing and Testing Technologies: Advanced Optical Manufacturing Technologies*. International Society for Optics and Photonics, 2019, 10838: 108380R.
5. Xia J, Zhang L, Zhao H, et al. **Iterative optimization procedure based design of phase masks suitable for computational depth of field extension**[C]//*Optoelectronic Imaging and Multimedia Technology V*. International Society for Optics and Photonics, 2018, 10817: 108170R.
6. Zhang L, Zhao H, Fan X. **Performance evaluation of phase diversity wave-front sensing in obtaining high-resolution images**[C]//*Tenth International Conference on Digital Image Processing (ICDIP 2018)*. International Society for Optics and Photonics, 2018, 10806: 1080630.
7. Ni, D., Li, X., Yang, M., Tian, C., Zhang, L. (2018, July). **A large field of view optical system design for space target detection**. In *Sixth International Conference on Optical and Photonic Engineering (icOPEN 2018)* (Vol. 10827, p. 108272P). International Society for Optics and Photonics.

PATENTS

1. Hui Zhao, Jingxuan Wei, Jingjing Xia, Ling Zhang, Chuang Li, Xuewu Fan. **“Sub-pixel super-resolution imaging system and a method based on translationally adjustable wavefront coding,”** *CN Patent Provisional App.*, 2019.
2. Jingxuan Wei, Hui Zhao, Jingjing Xia, Ling Zhang. **“The adjustable wavefront coded imaging systems of phase mask,”** *CN Patent Provisional App.*, 2018.
3. Hui Zhao, Jingxuan Wei, Xuewu Fan, Jingjing Xia, Ling Zhang. **“A kind of adjustable dynamic wavefront coded imaging systems of phase mask,”** *CN Patent Provisional App.*, 2018.

REFERENCES

Prof. David McGloin

Univerisy of Technology Sydney. Sydney, Australia

Email: David.McGloin@uts.edu.au

Personal Site: <https://www.uts.edu.au/staff/david.mcgloin>

Prof. Hui ZHAO

Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences. Xi'an, China

Email: zhahui@opt.ac.cn

Personal Site: <http://people.ucas.ac.cn/~0030177>

Dr. Fan WANG

Univerisy of Technology Sydney. Sydney, Australia

Email: Fan.Wang@uts.edu.au

Personal Site: <https://www.uts.edu.au/staff/fan.wang>