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Curriculum Vitae

Puxiang Lai, Ph.D.
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Google Scholar: https://scholar.google.com.hk/citations?hl=en&user=W1_W2Q4AAAAJ

Research Interests

Deep-tissue probing and treatment with light and sound, including (but are not limited to)

- Optical wavefront shaping
- Photoacoustic imaging
- Adaptive optics
- Optical microscopy
- Biomedical ultrasound
- Computational imaging
- Applications of artificial intelligence techniques in biomedicine and information

Education and Training

- **NIH Postdoctoral training** Jul. 2010 – Aug. 2015
  Department of Biomedical Engineering, Washington University in St. Louis, USA
  Mentor: Professor Lihong V. Wang (National Academy of Engineering, USA)

- **Doctor of Philosophy** Sep. 2005 – Jan. 2011
  Department of Mechanical Engineering, Boston University, Boston, USA
  Advisors: Professor Ronald A. Roy (U. of Oxford, UK) and Professor Todd W. Murray

- **Master of Science** Sep. 2002 – Jul. 2005
  Institute of Acoustics, Chinese Academy of Sciences, Beijing, China
  Advisors: Professor Bixing Zhang and Professor Chenghao Wang (Academician)

- **Bachelor of Engineering** Sep. 1998 – Jul. 2002
  Department of Biomedical Engineering, Tsinghua University, Beijing, China

Academic Positions

- **Associate Professor (tenured)** Jul. 2021 – Present
  Biophotonics Lab, Department of Biomedical Engineering, Hong Kong Polytechnic University, Hong Kong SAR, China
- **Visiting Chair Professor** Jun. 2025 – Present
  Xidian University Guangzhou Research Institute, Guangzhou, China
- **Visiting Professor** Jun. 2021 – Present
  Zhujiang Hospital, Southern Medical University, Guangzhou, China
- **Associate Professor** Jan. 2017 – Present
  Hong Kong Polytechnic University Shenzhen Research Institute, Shenzhen, China
- **Assistant Professor (tenure-track)** Sep. 2015 – Jun. 2021
  Biophotonics Lab, Department of Biomedical Engineering, Hong Kong Polytechnic University, Hong Kong SAR, China
- **Postdoctoral Research Associate** Jul. 2010 – Aug. 2015
  Optical Imaging Laboratory, Department of Biomedical Engineering, Washington University in St. Louis, USA
- **Graduate Research Assistant (Ph.D.)** Sep. 2005 – Jun. 2010
  Physical Acoustics Lab, Dept. of Mechanical Engineering, Boston University, USA
- **Graduate Research Assistant (M.S.)** Sep. 2002 – Jul. 2005
  Institute of Acoustics, Chinese Academy of Sciences, Beijing, China

PART I TEACHING

Teaching Experience

As Subject Leader:

- BME21148, Biomedical Electronics (undergraduate core), from 2022/2023 Academic Year
- BME31116, Biosignal Processing (undergraduate core), since 2017-2018 Academic Year

- BME5051, Molecular and Functional Imaging: From Body System to Molecules (graduate core), since 2018-2019 Academic Year
- BME6000, Advanced Topics in Biomedical Engineering (graduate core), since 2023/2024 Academic Year
- BME31121, Fundamentals of Biomedical Instrumentation II (undergraduate core), from 2015/2016 to 2021/2022 Academic Year

As Guest Lecturer:

- BME6002, Nobel Prize Discoveries and Biomedical Engineering
- BME6010, Advanced Topics in Medical Device and Bioinstrumentation
- SN5119, Healthcare Innovation

Teaching/Learning Grant

- Ministry of Education (教育部), Ten Thousand People's Scheme 2019 (2019 年萬人計劃),"2019 臨床醫學影像學暑期實習項目", 92,400 RMB，合作方: 華中科技大學同濟醫學院附屬協和醫院

PART II RESEARCH

Research Grants

Competitive external grants (alloated budget ~19.4 milllion HKD):

[G1] "Deep-tissue optical focusing towards in vivo by Fast Photoacoustically guided Wavefront Shaping (PAWS)", 2017-2019, 918,597 HKD, Hong Kong Research Grant Council (RGC), Early Career Scheme, No. 25204416, Hong Kong, 2016 (**PI**)

[G2] "适用于生物组织深层的高分辨率无创光学聚焦及其应用研究(Noninvasive high-resolution optical focusing in deep living biological tissue and its applications)", 2017-2020, 580,000 RMB, National Natural Science Foundation of China (NSFC), General Scheme(面上項目), No. 81671726, China, 2016 (**PI**)

[G3] "小动物全身高速光声分子影像设备研制及其应用 (Development and application of small-animal whole-body high-speed photoacoustic molecular imaging instrument)", 2017-2022, 6,350,000 RMB, National Natural Science Foundation of China (NSFC), National Key Instrumentation Development Scheme(國家重大科研儀器研製項目), No. 81627805, China, 2016 (**Co-PI**; budget 1/3 allocated to me)

[G4] "Photoacoustic Molecular Imaging of Osteoarthritic Pain - A Proof-of-Concept Study", 2016-2018, 755,898.20 HKD, Health and Medical Research Fund (HMRF), Research Fellowship Scheme, No. 01150087, Hong Kong, 2016 (**Co-I**)

[G5] "多模光纤快速波前整形技术及其在生物医学成像和传感中的应用前瞻", 2018-2020, 500,000 RMB, Shenzhen Science and Technology Innovation Commission, Shenzhen Basic Research Funding Scheme (基礎研究-自由探索項目), No. JCYJ20170818104421564, Shenzhen, China, 2018 (**PI**)

[G6] "Development of Aggregation Induced Emission-Boosted Adaptive Optical Microscopy for Enhanced Molecular Imaging", 2019-2020, 1,353,550 HKD, Innovation and Technology Commission (ITC), Innovation and Technology Support Program, Tier 3, No. ITS/022/18, Hong Kong, 2018 (**PI**)

[G7] "跨尺度光声分子影像用于脑胶质瘤早期诊断研究(Multiscale photoacoustic molecular imaging for early diagnosis of brain glioma)", 2020-2024, 2,970,000 RMB, National Natural Science Foundation of China (NSFC), State Key Research Scheme (重點項目), No. 81930048, China, 2019 (**PI**)

[G8] "基于多模光纤反射模式传输矩阵的散射光聚焦技术及其在生物医学中的应用初探(Optical focusing through multimode fibers based on reflection mode transmission matrix and its perspectives in biomedicine)",2019-2022, 100,000 RMB, Department of Science and Technology of Guangdong Province (廣東省科學技術廳), General Scheme (面上項目), No. 2019A1515011374, China, 2019 (**PI**)

[G9] "Optical Fiber Biomedical Sensing and Imaging Technologies (光纤生物医学传感及成像技术)", 2020/07/27-2025/07/26, 20,000,000 RMB (10% allocated to me), Department of Science and Technology of Guangdong Province (廣東省科學技術廳), Local Innovative and Research Teams Project of Guangdong Pearl River Talents Program (廣東特支計劃本土創新創業團隊項目), No. 2019BT02X105, China, 2020 (**Co-PI**; budget 10% allocated to me)

[G10] "Forward-looking intravascular photoacoustic/ultrasound imaging technology for the assessment and guidance of cardiovascular chronic total occlusion intervention", 2020-2024, 6,179,200 HKD, Hong Kong Research Grant Council (RGC), Research Impact Fund (RIF), No. R5029-19, Hong Kong, 2020 (**Co-PI**; budget 11.6% allocated to me)

[G11] "跨尺度光声成像用于小动物心肌微循环障碍的评价研究 (Multiscale photoacoustic imaging for small animal myocardial microcirculation evaluation)", 2021/1/1-2023/12/31, 2,110,500 HKD, Innovation and Technology Commission

(ITC), Innovation and Technology Fund - Guangdong-Hong Kong Technology Cooperation Funding Scheme (ITF-TCFS), No. GHP/043/19SZ, Hong Kong, 2020 (**PI**)

[G12] "小动物头戴式光纤光声显微镜(Fiber-based small animal head-mounted photoacoustic microscopy)", 2021/04/1-2024/03/31, 1,898,915 HKD, Innovation and Technology Commission (ITC), Innovation and Technology Fund - Guangdong-Hong Kong Technology Cooperation Funding Scheme (ITF-TCFS), No. GHP/044/19GD, Hong Kong, 2020 (**PI**)

[G13] "Spatio-temporally Precise Brain Stimulation with 2-D Flexible Ultrasound Technology", 2021-2023, 2,647,800 HKD, Innovation and Technology Fund - Mainland-Hong Kong Joint Funding Scheme (ITF-MHKJFS), No. MHP/014/19, 2021 (**Co-I**)

[G14] "Reflective multimode fiber-based wavefront shaping and its *in vitro* demonstrations for minimally invasive high-resolution stimulation and imaging in deep biological tissue", 2022-2024, 563,714 HKD, Hong Kong Research Grant Council (RGC), General Research Fund (GRF), No. 15217721, Hong Kong, 2021 (**PI**)

[G15] "An upright multiphoton microscope for intravital imaging and optogenetic studies", 2022-2024, 3,910,000 HKD, Hong Kong Research Grant Council (RGC), Collaborative Research Fund (CRF), No. C5078-21EF, Hong Kong, 2022 (**Co-PI**)

[G16] "Unveiling neural activities through spatiotemporally optimized multiphoton (STOMP) microscopy", 2022-2025, 7,883,046 HKD, Hong Kong Research Grant Council (RGC), Collaborative Research Fund (CRF), No. C7074-21GF, Hong Kong, 2022 (**Co-PI**; budget 12.7% allocated to me)

[G17] "光纤内窥显微成像技术机理研究 (Optical fiber endomicroscopic imaging: research of mechanisms and pilot applications)", 2023-2025, 1,500,000 RMB, Shenzhen Science and Technology Innovation Commission, 基础研究重点项目, No. JCYJ20220818100202005, Shenzhen, China, 2022 (**Co-PI**; budget 49.8% allocated to me)

[G18] "Multimode fiber-based deep-penetrating ultraviolet photoacoustic microscopy for in-vivo micron-scale label-free tumor margin assessment and intraoperative histopathology of gliomas", 2025-2027, 1,068,699 HKD, Hong Kong Research Grant Council (RGC), General Research Fund (GRF), No. 15125724, Hong Kong, 2024 (**PI**)

[G19] "A multifunctional time-space-energy-helicity resolved transient absorption microscopy imaging system for advanced materials and devices research", 2025-2027, 3,600,000 HKD, Hong Kong Research Grant Council (RGC), Collaborative Research Fund (CRF) - Collaborative Research Equipment Grant (CREG), No. C5003-24E, Hong Kong, 2024 (**Co-PI**)

[G20] "Research of intelligent pathology based on multiparameter in-vivo optical imaging", 2025-2027, 2,316,950 HKD, Innovation and Technology Fund - Mainland-Hong Kong Joint Funding Scheme (ITF-MHKJFS) (2025) *Secured* (**PI**)

PolyU internal grants (allocated budget ~6 million HKD):

[G21] "Deep-Tissue Optical Focusing and its Applications in Biomedicine", 2015-2018, 500,000 HKD, Hong Kong Polytechnic University, Startup Fund, No. 1-ZE5D, Hong Kong, 2015 (**PI**)

[G22] Major Equipment Fund, 2015-2018, 1,450,000 HKD, Hong Kong Polytechnic University, No. 1-DDZK, Hong Kong, 2015 (**PI**)

[G23] "Development of Novel Internal Guidestars for Digital Optical Phase Conjugation and Adaptive Optics towards Enhanced Optical Focusing and Imaging at Depths", 2019-2020, 200,000 HKD, Hong Kong Polytechnic University, No. G-YBZ2, Hong Kong, 2018 (**PI**)

[G24] "Ray Station - Deep Learning Computer System for Radiotherapy Treatment Planning and Medical Images Processing (HTI-4) ", 2021-2022, 1,000,000 HKD, Large Equipment Fund, Hong Kong Polytechnic University, No. 1-BC5Z, Hong Kong, 2021 (**Co-PI**)

[G25] "多模光纤的脑区深层高分辨率光学刺激和成像一体化微创系统研发与应用", 2022-2024, 200,000 RMB, 香港理工大学深圳研究院，光子学研究启动基金，No. ZXLX20220325-00008, Shenzhen, 2022 (**PI**)

[G26] "Development of Wearable Multi-Parameter Measurement System for Athletic Physiological State Monitoring", 2022-2024, 300,000 HKD, Projects of RISports, Hong Kong Polytechnic University Research Institute of Sports, No. CD5M, Hong Kong, 2022 (**PI**)

[G27] "Image reconstruction and optical encryption with multifunctional metasurface diffusers", 2023-2025, 875,620 HKD, Centrally Funded Postdoctoral Fellowship Scheme, Hong Kong Polytechnic University, No. YXBH, Hong Kong, 2023 (**PI**)

[G28] "Innovative fiber-based optical-resolution photoacoustic endomicroscopy (FOPE) and its applications for minimally invasive early diagnosis of neurodegenerative

brain diseases", 2023-2025, 1,000,000 HKD, Photonics Research Institute Strategic Grant, Hong Kong Polytechnic University, Hong Kong, 2023 (**PI**)

Research Student Supervision

- *PhD students (in Biomedical Engineering)*

  Graduated:

  1) Huanhao Li, 09/2016-02/2021, as chief supervisor
  2) Fei Cao, 09/2016-06/2021, as co-supervisor
  3) Zhipeng Yu, 09/2018-06/2021, as chief supervisor
  4) Yingying Zhou, 09/2017-08/2021, as chief supervisor
  5) Tianting Zhong, 09/2018-09/2022, as chief supervisor
  6) Xiazi Huang, 01/2019-05/2023, as chief supervisor
  7) Shengfu Cheng, 09/2019-07/2024, as chief supervisor
  8) Qi Zhao, 09/2020-10/2024, as chief supervisor
  9) Chi Man Woo, 09/2021-08/2025 (expected), as chief supervisor
  10) Weiran Pang, 09/2021-08/2025 (expected), as chief supervisor
  11) Jing Yao, 09/2021-08/2025 (expected), as chief supervisor

  Ongoing:

  1) Haofan Huang, 09/2022-TBD, as chief supervisor
  2) Haoran Li, 09/2022-TBD, as chief supervisor
  3) Wenzhao Li, 09/2022-TBD, as chief supervisor
  4) Chuqi Yuan, 09/2023-TBD, as chief supervisor
  5) Zhiyuan Wang, 09/2024-TBD, as chief supervisor
  6) Kai Chen, 09/2024-TBD, as chief supervisor
  7) Weibin Cai, 09/2024-TBD, as chief supervisor
  8) Xiaozhou Xiao, 09/2024-TBD, as chief supervisor
  9) Yuzhen Li, 09/2024-TBD, as chief supervisor
  10) Xian Hu, 05/2025-TBD, as chief supervisor
  11) Siyang Zheng, 09/2025-TBD, as chief supervisor
  12) Qian Ding, 09/2025-TBD, as chief supervisor
  13) Jie Yang, 09/2025-TBD, as chief supervisor

- *MPhil students (in Biomedical Engineering)*
  1) Yuchen Song, defensed on 11/2021, as chief supervisor
  2) Yuandong Zheng, 09/2022-08/2025 (expected), as chief supervisor

- *MSc students (in Biomedical Engineering)*
  1) Tianting Zhong, graduated in August 2017, as chief supervisor

2) Sizhou Guo, graduated in August 2019, as chief supervisor
3) Lingwei Lyu, graduated in August 2017, as chief supervisor
4) Jiahao Li, graduated in January 2024, as chief supervisor
5) Tianze Xie, graduated in June 2024, as chief supervisor

Selected Awards and Honors

- Best Paper Award, The Innovation Conference 2025, July 11-13, 2025
- Most Read Paper Award, The Innovation Conference 2025, July 11-13, 2025
- "2024 中国光学十大进展"提名奖（应用研究类）, 中国激光杂志社, January 21, 2025
- Research Grant Achievement Award (2023), The Hong Kong Polytechnic University, Faculty of Engineering, December 31, 2024
- 2024 Outstanding Reviewer, Optica Publishing Group, July 16, 2024
- 2023 年度优秀编委，Visual Computing for Industry, Biomedicine, and Art, February 2024
- Outstanding Young Researcher (for Research and Scholarly Activities) (2023), The Hong Kong Polytechnic University, Faculty of Engineering, August 2023
- Research Grant Achievement Award (2021), The Hong Kong Polytechnic University, Faculty of Engineering, March 2023
- Outstanding Reviewer Award of Opto-Electronic Advances (OEA) 2020, July 27, 2021
- 中國圖學學會第七屆理事會優秀學會工作者獎，中國圖學學會，July 4, 2021
- 1st and 2nd Runner-Ups (as the supervisor), The Hong Kong Polytechnic University the BME 3MT Conference 2021, May 2021
- 1st Runner-Up (as the supervisor), The Hong Kong Medical and Healthcare Device Industries Association Student Research Award 2020, December 2020
- The Faculty Merit Award for Outstanding Achievement in Research, The Hong Kong Polytechnic University, Faculty of Engineering, August 2020
- K.C. Wong Belt and Road Visiting Fellowship Scheme, The Hong Kong Polytechnic University, December 2019
- Dr. Kong Footcare Ltd. Scholarship - Best Capstone Project Award (as the supervisor), August 2019
- Research Grant Achievement Award (2016), The Hong Kong Polytechnic University, Faculty of Engineering, March 2018
- Best student poster award (as the supervisor), the 14th International Conference on Photonics and Imaging in Biology and Medicine (PIBM), September 2017
- Hong Kong RGC Early Career Award, October 2016
- 12th National 1000 Talent Plan Youth Scholar, National Natural Science Foundation of China, January 2016

- Seno Medical Best (Oral) Paper Award, Photons Plus Ultrasound: Imaging and Sensing Conference (part of SPIE Photonics West), 2014
- Seno Medical Best (Poster) Paper Award, Photons Plus Ultrasound: Imaging and Sensing Conference (part of SPIE Photonics West), 2014
- Best Poster, 2010 Meeting of the Ultrasonic Industry Association, 2010
- Best Poster, Research and Industrial Collaboration Conference hosted by the National Science Foundation (NSF), Bernard M. Gordon Center of Subsurface Sensing and Imaging Systems, 2007
- Graduate Research Fellowship, Boston University, 2006 – 2010
- Dean's Fellowship, Boston University, 2005 – 2006
- Graduate Research Fellowship, Chinese Academy of Sciences, 2002 – 2005

Peer Reviewed Journal Publications

[ ] represents equal contribution, # represents corresponding authorship.

Esteemed journal publications:

[J1] Liangjian Liu, Zhiqiang Xu1, Zhenjie Lai, Bin Xu, Taofeng Wu, Guangying Ma, Hongdong Zhang, Jiahao Li, Weilei Ma, Tiancheng Lei, Xiufeng Li, Zeyi Guo, Zheng Song, Ningbo Chen, Shiwei Ye, Jing Meng, **Puxiang Lai**, Feng Shen, Junlei Chang, Yingjie Zhu, Hairong Zheng#, Wei Zheng#, and Chengbo Liu#, "Photoacoustic and fluorescence hybrid microscope for cortex-wide imaging of neurovascular dynamics with subcellular resolution", Science Advances (*in press*)

[J2] Liping Xu, Xianguang Yang#, Ming Chen, Kai Li, Junda He, Dehua Tian, Zaizhu Lou, Fangchang Tan, **Puxiang Lai**, Andrea Camposeo, Dario Pisignano, Baojun Li, "Active optical waveguides and metal ion sensors based on nanofibers with aggregation induced emission", **Nano Research** (*accepted*) (2025) https://doi.org/10.26599/NR.2025.94907572 (15/05/2025)

[J3] [Qi Zhao, Huanhao Li, Tianting Zhong], Shengfu Cheng, Haofan Huang, Haoran Li, Jing Yao, Wenzhao Li, Chi Man Woo, Lei Gong, Yuanjin Zheng#, Zhipeng Yu#, and **Puxiang Lai**#, "Extended Learning Robustness for High-Fidelity Human Face Imaging from Spatiotemporal Decorrelated Speckles", **Laser and Photonics Reviews** (*in press*) (2025)

[J4] [Tianting Zhong, Haofan Huang, Haoran Li], YongKeun Park#, and **Puxiang Lai**#, "Redefining frontiers of computational imaging with deep learning", **Photonics Insights** 4(2): C04 (2025) https://doi.org/10.3788/PI.2025.C04 (27 June 2025)

[J5] Ningbo Chen, Zhiqiang Xu, Zheng Song, Jiuling Liao, Hongdong Zhang, Jiahao Li, Taofeng Wu, Weilei Ma, Tiancheng Lei, Liangjian Liu, Guangying Ma, Hui Liao,

Shiwei Ye, Jing Meng, Liang Song, **Puxiang Lai**, Yingjie Zhu, Kenneth KY Wong, Hairong Zheng#, Wei Zheng#, Chengbo Liu#, "Simultaneous head-mounted imaging of neural and hemodynamic activities at high spatiotemporal resolution in freely behaving mice", **Science Advances** 11(12): eadu1153 (2025) https://doi.org/10.1126/sciadv.adu1153 (21/03/2025)

[J6] [Jing Yao, Zhipeng Yu, Yufeng Gao, Baoju Wang], Zhiyuan Wang, Tianting Zhong, Bixiong Pan, Huanhao Li, Hui Hui#, Wei Zheng#, Qiuqiang Zhang#, and **Puxiang Lai**#, "Deep-penetrating and high-resolution continuous-wave nonlinear microscopy based on homologous dual-emission upconversion adaptive optics", **Nano Letters** 25(13):5482-5492 (2025)

https://doi.org/10.1021/acs.nanolett.5c01030 (3/20/2025)

[J7] Wenzhao Li, Jingbo Li, Xiaoya Ding, Qitao Tan, Weijian Sun#, **Puxiang Lai**#, and Yuanjin Zhao#, "Multi-bioinspired electronic skins with on-demand adhesion and optoelectronic synergistic display capabilities", **The Innovation** 6(5): 100877 (2025). https://doi.org/10.1016/j.xinn.2025.100877 (5/5/2025)

[J8] Feichao Xuan, Xingyang Zhao, Weiran Pang, Zirong Li, Xiangyi Yin, Weizhong Xie, Xiaojun Zeng, Liming Nie, Junying Yang, **Puxiang Lai**#, Chihua Fang#, "Biomimetic Co-delivery of Lenvatinib and FePt Nanoparticles for Enhanced Ferroptosis/Apoptosis Treatment of Hepatocellular Carcinoma", **Advanced Healthcare Materials** (2025). https://doi.org/10.1002/adhm.202401747 (03/21/2025)

[J9] Zhipeng Yu, Xinyue Gao, Jing Yao, Haoran Li, Yuzhi Shi, Bo Li, Zhenwei Xie, Xiaocong Yuan#, **Puxiang Lai**#, and Qinghua Song#, "Spin-Orbit-Locking Vectorial Metasurface Holography", **Advanced Materials** 37(9): 202415142 (2025), https://doi.org/10.1002/adma.202415142 (3/05/2025) (Insider front cover article)

[J10] [Siyang Zheng, Wenzhao Li, Weiran Pang], Tianting Zhong#, and **Puxiang Lai**#, "Optical transparency in live animals: leap towards deep-tissue applications", **Advanced Photonics** 6(6): 060504 (2024). http://doi.org/10.1117/1.AP.6.6.060504 (12/06/2024)

[J11] [Zhipeng Yu, Xinyue Gao], Jing Yao, Zhiyuan Wang, Tianting Zhong, Yuzhi Shi, Bo Li, **Puxiang Lai**#, Xiangping Li#, and Qinghua Song#, "A spatial-frequency patching metasurface enabling super-capacity perfect vector vortex beams", **eLight** 4:21 (2024). https://doi.org/10.1186/s43593-024-00077-3 (12/01/2024) (Cover article)

[J12] [Jiyu Li, Yingying Zhou, Xiazi Huang], **Puxiang Lai**[#], and Yuan Huang[#], "Surface adaptive interfaces: Bioresorbable ultrasound biomedical devices for non-invasive monitoring and imaging of deep-tissue homeostasis", **The Innovation** 5(4): 100651 (2024). https://doi.org/10.1016/j.xinn.2024.100651

[J13] Weiran Pang, Bowen Zhu, Honghui Li, Yingying Zhou, Chi Man Woo, Xiazi Huang, Tianting Zhong, Hsuan Lo, Laiyou Wang, **Puxiang Lai**[#], and Liming Nie[#], "Direct Monitoring of Whole-Brain Electrodynamics via High-Spatiotemporal-Resolution Photoacoustics with Voltage-Sensitive Dye", **Laser and Photonics Reviews** 18(10): 2400165 (2024). https://doi.org/10.1002/lpor.202400165

[J14] [Zhipeng Yu, Huanhao Li, Wannian Zhao], Po-Sheng Huang, Yu-Tsung Lin, Jing Yao, Wenzhao Li, Qi Zhao, Pin Chieh Wu, Patrice Genevet[#], Qinghua Song[#], and **Puxiang Lai**[#], "High-security Learning-based Optical Encryption assisted by Disordered Metasurface", **Nature Communications** 15(1): 2607 (2024). https://doi.org/10.1038/s41467-024-46946-w

[J15] [Tao Huang#, Huiyu Xu, Haitao Wang, Haofan Huang, Yongjun Xu, Baohua Li], Shenda Hong, Guoshuang Feng, Shuyi Kui, Guangjian Liu, Dehua Jiang, Zhi-Cheng Li, Ye Li, Congcong Ma, Chunyan Su, Wei Wang, Rong Li, **Puxiang Lai**[#], and Jie Qiao[#], "Artificial intelligence for medicine: Progress, challenges, and perspectives", **The Innovation Medicine** 1(2): 100030 (2023). doi: 10.59717/j.xinn-med.2023.100030

[J16] Lichun Wang, Wenzhao Li, Min Li, **Puxiang Lai**, Chunhua Yang, Hui Wang, Bo Ma, Rongkang Huang, Yan Zu, "Bio-inspired fractal robust hydrogel catheter for intra-abdominal sepsis management", **Advanced Science** 10(32): 202303090 (2023). DOI: 10.1002/advs.202303090 (October 11, 2023)

[J17] Yifan Liu, Panpan Yu, Yijing Wu, Jinghan Zhuang, Ziqiang Wang, Yinmei Li, **Puxiang Lai**, Jinyang Liang, and Lei Gong[#], "Optical Single-Pixel Volumetric Imaging by Three-dimensional Light-Field Illumination", **Proceedings of the National Academy of Sciences (PNAS)** 120(31): e2304755120 (2023). https://doi.org/10.1073/pnas.2304755120 (July 24, 2023)

[J18] Wenzhao Li, Yunru Yu, Rongkang Huang, Xiaocheng Wang, **Puxiang Lai**, Kai Chen[#], Luoran Shang[#], and Yuanjin Zhao[#], "Multi-bioinspired functional conductive hydrogel patches for wound healing management", **Advanced Science** 202301479 (2023). https://doi.org/10.1002/advs.202301479

[J19] Shan Jiang, Tianqi Zhang, Yingying Zhou, **Puxiang Lai**, and Yuan Huang[#], "Wearable ultrasound bioelectronics for healthcare monitoring", **The Innovation** 4(4): 100447 (July 10, 2023). https://doi.org/10.1016/j.xinn.2023.100447

[J20] [Xiazi Huang, Hui Hui], Wenting Shang, Pengli Gao, Yingying Zhou, Weiran Pang, Chi Man Woo, Jie Tian[#], and **Puxiang Lai**[#], "Deep penetrating and sensitive targeted magnetic particle imaging and photothermal therapy of early-stage glioblastoma based on a biomimetic nanoplatform", **Advanced Science** 10(19): 2300854 (2023). https://doi.org/10.1002/advs.202300854

[J21] Huanhao Li, Zhipeng Yu, Tianting Zhong, Shengfu Cheng, and **Puxiang Lai**[#], "Towards ideal focusing of diffused light via optical wavefront shaping", **Advanced Photonics** 5(2): 020502 (2023)

[J22] Xuyu Zhang, Jingjing Gao, Yu Gan, Chunyuan Song, Dawei Zhang[#], Songlin Zhuang, Shensheng Han, **Puxiang Lai**[#], and Honglin Liu[#], "Different channels to transmit information in scattering media". **PhotoniX** 4, 10 (2023). https://doi.org/10.1186/s43074-023-00087-3

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[J114] **P. Lai**, B. Zhang[#], and C. Wang[#], "Radiation and reflection acoustical fields of an annular phased array," *Chinese Journal of Acoustics* 26(3), 246-260 (2007).

[J115] **赖溥祥**，张碧星[#]，汪承灏，“环形相控阵换能器辐射和反射声场”，*声学学报* 32(3), 212-220 (2007) (*in Chinese*).

[J116] B. Zhang, C. Wang, and **P. Lai**, "Theoretical and experimental investigation of ultrasonic focusing with annular phased array," *Chinese Physics Letters* 23(4), 875-878 (2006).

Non-Peer Reviewed Articles

- X. Xu, **P. Lai,** and L. V. Wang, "Focusing light into tissue," *SPIE Newsroom,* August 28, 2013, DOI: 10.1117/2.1201308.004937.

Patents

1) 肖嘉莹，王波，蒋锦昇，何霄，**赖溥祥**，"基于光学多模态的消化道肿瘤光动力诊疗一体化内窥探头"，中国国家知识产权局，申请号 CN202310606905.2，申请日期 2023 年 5 月 26 日，公告号 CN116584880A，公告日 2023 年 8 月 15 日

2) **赖溥祥**，周颖颖，庞未然，"一种基于基底光声的组织硬度研究新方法及应用"，中国国家知识产权局，申请号 CN202210602712.5，申请日期 2022 年 5 月 30 日，公告号 CN116183507A，公告日 2023 年 5 月 30 日

3) **赖溥祥**，赵麒，李焕浩，余志鹏，"一种基于光学散斑的加密人脸识别方法与系统"，中国国家知识产权局，专利号 ZL202111273688.7，授权公告号 CN114117514B（2022）

4) **赖溥祥**，孙雷，仲天庭，丘志海，"一种光遗传学实验方法与系统"，中国国家知识产权局，授权公告号 CN 112842604 B（2022）

5) **Puxiang Lai**, Lei Sun, Tian Zhong, and Zhihai Qiu, "Method and system for optogenetics experiments", US Patent No. 11,633,620B2 (2023)

6) **赖溥祥**,仲天庭,胡子敏，用于活体组织细胞的调控系统及方法，中国专利，申请号 202410381387.3 (2024)
7) **Puxiang Lai**, Tianting Zhong, and Chi Man Woo, System And Method for Regulating Living Tissue Cell， US Patent, Application No. 18/760,667 (2024)
8) **Puxiang Lai**, Tianting Zhong, Shengfu Cheng, and Chi Man Woo, Method And Apparatus For High-fidelity Lensless Multimode Fiber-based Photoacoustic Endomicroscopy, US Patent, Application No. 18/759,180 (2024)
9) Lihong V. Wang, Lidai Wang, Chi Zhang, **Puxiang Lai**, and Jian Wei Tay, "Systems and Methods of Grueneisen-Relaxation Photoacoustic Microscopy and Photoacoustic Wavefront Shaping", International Patent Number WO 2015/077355 A1/ US Patent No. 20160305914A1 (2016).

Book Chapters

1) Junfei Zhu, Chuen Kam, Engui Zhao, **Puxiang Lai**, and Sijie Chen, "Fluorescent sensors based on aggregation-induced emission nanomaterials" in “Sensing and Biosensing with Optically Active Nanomaterials”, Editor: Suban Sahoo, Paperback ISBN: 9780323902441, https://doi.org/10.1016/C2019-0-05063-7, Elsevier (2022)
2) (*Invited*) Yingying Zhou, Xiazi Huang, and **Puxiang Lai**, "光聲成像系統在肝臟腫瘤邊界界定的研究" in《数字化肝臟外科學》,人民衛生出版社(*in press*)
3) (*Invited*) Xiao Xu, Cheng Ma, **Puxiang Lai**, and Lihong V. Wang, "Wavefront-engineered optical focusing into scattering media using ultrasound- or perturbation-based guide stars: TRUE, TRAP, SEWS, and PAWS", in “Wavefront Shaping for Biomedical Imaging”, doi:10.1017/9781316403938, Cambridge University Press (2019).

Invited Seminars/Lectures

[S1] Great Bay University, May 29, 2025

[S2] Nanjing University of Science and Technology, April 22, 2025

[S3] Unviersity of Science and Technology of China, April 18, 2025

[S4] Chineae Academy of Sciences, Shenzhen Institute of Advanced Technology, January 8, 2025

[S5] Quanzhou Normal University, Quanzhou, China, October 27, 2024

[S6] Guangdong Academy of Medical Sciences and Guangdong Provincial People's Hospital, Guangdong, China, September 24, 2024

[S7] Guangdong University of Technology, Guangzhou, China, September 23, 2024

[S8] Wenzhou Institute, University of Chinese Academy of Sciences, Wenzhou, China, April 22, 2024

[S9] Harbin Institute of Technology (Weihai), Weihai, China, March 30, 2024

[S10] Shandong University, School of Integrated Circuits, Jinan, China, March 22, 2024

[S11] Hong Kong Polytechnic University, Photonic Research Institute, Hong Kong SAR, China, March 15, 2024

[S12] Tsinghua Shenzhen International Graduate School, Shenzhen, December 06, 2023

[S13] Huaqiao University, Xiamen, China, November 18, 2023

[S14] Zhejiang Lab, Hangzhou, China, August 4, 2023

[S15] Zhejiang University, Hangzhou, China, July 28, 2023

[S16] Westlake University, School of Engineering, Hangzhou, China, July 27, 2023

[S17] Xi'an Jiaotong University, School of Physics, Xi'an, China, March 10, 2023

[S18] Xidian University, School of Life Science and Technology, December 10, 2022

[S19] Xiamen University, School of Public Health, Xiamen, China, December 4, 2022

[S20] Huaqiao University, Colleague of Information Science and Engineering, Xiamen, China, December 3, 2022

[S21] Tsinghua Shenzhen International Graduate School, Shenzhen, October 2022

[S22] The Innovation (journal) Webinar, August 2022

[S23] Jinan University, Institute of Photonics Technology, Guangzhou, August 2022

[S24] Shenzhen University Affiliated Huanan Hospital, Shenzhen, China, May 6, 2022

[S25] Shantou University, Department of Biomedical Engineering, Shantou, China, 2022

[S26] Tianjin University, School of Precision Instrument and Opto-Electronics Engineering, Tianjin, China, 2021

[S27] Insight Lifetech（北芯生命科技）, Shenzhen, China, 2021

[S28] Southern Medical University, Zhujiang Hospital, Guangzhou, China, 2021

[S29] Shenzhen University, College of Physics and Electronics Engineering, 2021

[S30] Tsinghua Shenzhen International Graduate School, Shenzhen, China, 2021

[S31] Shanghai Jiatong University, Department of Biomedical Engineering, Shanghai, China, 2021

[S32] Central South University, Department of Biomedical Engineering, Changsha, China, 2020

[S33] Pengcheng Lab, Shenzhen, China, 2020

[S34] Ningbo University, School of Physical Science and Technology, Ningbo, China, 2020

[S35] Guangzhou Renmin Hospital/Guangdong Academy of Medical Sciences, Guangzhou, China, 2020

[S36] Tsinghua Shenzhen International Graduate School, Shenzhen, China, 2019/2020

[S37] Southern University of Science and Technology, Department of Biomedical Engineering, 2019

[S38] Peking University, Department of Physics, 2019

[S39] South China Normal University, South China Academy of Advanced Optoelectronics, Centre for Optical and Electromagnetic Research, 2019

[S40] Sun Yat-Sen University, School of Electronic and Information Technology, 2019

[S41] Chinese Academy of Sciences, Shenzhen Institutes of Advanced Technology, 2019

[S42] Ming Wai Lau Center for Reparative Medicine, Karolinska Istitutet, Hong Kong, 2018

[S43] Huazhong University of Science and Technology, Tongji Medical School, Union Hospital, 2018

[S44] Dongguan University of Technology, School of Electrical Engineering and Intelligentization, 2018

[S45] Chinese Academy of Sciences, Institute of Acoustics, 2018

[S46] Shenzhen University, Nanophotonics Research Center, 2017

[S47] Jinan University, Institute of Photonics Technology, 2017

[S48] Chinese Academy of Sciences, Institute of Automation, 2017

[S49] Beihang University, School of Biological Science and Medical Engineering, 2015

[S50] Tsinghua University Graduate School at Shenzhen, Institute of Biomedical Engineering, 2015

[S51] Chinese Academy of Sciences, Shenzhen Institutes of Advanced Technology, 2015

[S52] South University of Science and Technology of China, Department of Biology, 2015

[S53] Zhejiang University, College of Optical Science and Engineering, 2015

[S54] Tsinghua University, Department of Precision Instrument, 2015

[S55] Peking University, Department of Biomedical Engineering, 2015

[S56] Duke University, Department of Biomedical Engineering, 2015

[S57] Chinese Academy of Sciences, Institute of Acoustics, 2013

[S58] Chinese Academy of Sciences, Institute of Acoustics, 2009

Invited/Keynote/Plenary Conference Presentations

[P1] "Multiscale Deep-Tissue Photoacoustic Imaging", Light Conference 2025, Changchun, China, June 12, 2025

[P2] "波前整形技术赋能多模光纤在多物理场调控中的前沿探索"，第七届计算成像技术与应用专题研讨会， May 25, 2025

[P3] "深层组织高分辨率光学成像及其生物医学应用"，第十五届海峡两岸超声医学论坛，Shanghai, China, May 23, 2025

[P4] "基于波前整形赋能多模光纤实现长距离全光逻辑运算"，2024 中国光学十大进展论坛，Shanghai, China, March 29, 2025

[P5] "散射光调控和深层生物组织光学：原理及应用初探"，第四届全国光子技术论坛（大湾区），Shenzhen, China, December 6, 2024

[P6] "Multiscale photoacoustic imaging: Monitoring of brain electrodynamics and beyond", The 5th Macau Symposium on Cognitive and Brain Sciences, Macau, China, November 30, 2024

[P7] "Deep-tissue optics empowered by photoacoustics and wavefront shaping", International Conference on Neuromorphic Photonics 2024, Shanghai, China, November 23, 2024

[P8] "Small-animal photoacoustic imaging: recent progress and perspectives", The International Forum on Medical Molecular Imaging 2024, Hong Kong, China, November 21, 2024

[P9] "Deep-tissue optical imaging and stimulation with wavefront shaping and multimode fiber", The 17th International Conference on Photonics and Imaging in Biology and Medicine (PIBM), Sanya, China, November 2, 2024

[P10] "Engineering random speckles for optical computation and cryptography", PhotoniX Forum, Shanghai, China, October 18, 2024

[P11] "Computation and learning-based optical modulation, imaging, and processing through multimode fiber", SPIE Photonics Asia, Nantong, China, October 12, 2024

[P12] "Deep-tissue photoacoustic and magnetic particle imaging for targeted cancer diagnosis", SPIE Photonics Asia, Nantong, China, October 12, 2024

[P13] "Deep-tissue optical imaging via photoacoustics, optical wavefront shaping, and computation", MEDNTD Conference, Hangzhou, China, October 8, 2024

[P14] "Wavefront shaping-empowered multimode fibers: principles, applications, and perspectives", The International Computational Imaging Conference (CITA2024), Xiamen, China, September 21, 2024

[P15] "Transforming Speckles: Shaping and Learning in Deep-Tissue Optics", The International Conference on Nanophotonics, Shenzhen, China, September 9, 2024

[P16] "Empowering multimode fiber for minimally invasive deep-brain imaging with wavefront shaping", Workshop on Unveiling Neural Activities through Advanced Microscopic Technologies, The University of Hong Kong, Hong Kong SAR, August 29, 2024

[P17] "Learning-based optical cryptosystem based on random speckles", SPIE Optics and Photonics – Emerging Topics in Artificial Intelligence, San Diego, USA, August 22, 2024

[P18] "Ordered and encrypted information through random speckles through computation and learning", Optics Frontier: The 15th International Conference on Information Optics and Photonics (CIOP), Xi'an, China, August 14, 2024

[P19] "基于波前整形的散射光聚焦、成像、刺激及信息传递"，第二届光学工程前沿交叉科学大会，Tianjin, China, May 25, 2024

[P20] "基于波前整形的多模光纤散射光调控及其多元应用"，第六届计算成像技术与应用专题研讨会，Chongqing, China, May 18, 2024

[P21] "Information Extraction, Reconstruction, Encryption, and Logical Operations with Scattered Light", The 1st International Conference on Optoelectronic Integration (COINT), Hangzhou, China, May 14, 2024

[P22] "基于多模光纤散射光的图像信息提取、重建、加密以及逻辑运算"，Advanced Imaging 研讨会，Hangzhou, China, April 20, 2024

[P23] "波前整形技术赋能多模光纤及其应用探索"，第三届国际计算成像会议，Beijing, China, December 9, 2023

[P24] "仿生纳米探针赋能的深穿透光声成像和磁颗粒成像及其活体肿瘤靶向诊断应用初探", 2023 中国医药生物技术协会生物医学成像技术分会学术年会, Beijing, China, November 25, 2023

[P25] "See clearly into deep biological tissues via photoacoustics and wavefront shaping", 2023 Maritime Silk Road International Conference (MSRIC) on the Cooperation and Integration of Industry, Education, Research, and Application – Physics (2023 水上丝绸之路大会 物理分会), Guangzhou, China, November 14, 2023 (Plenary)

[P26] "Deep-tissue optics: recent advances via photoacoustics and wavefront shaping", 2023 Asia Communications and Photonics Conference, Wuhan, China, November 5, 2023

[P27] "基于仿生纳米探针的光声成像和磁颗粒成像应用于活体肿瘤的靶向诊断"，第五届分子影像学厦门论坛（IMIS 2023），Xiamen, China, October 21, 2023

[P28] "基于光学散斑的光学聚焦、图像信息重建和加密"，粤港澳大湾区智能微纳光电技术学术会议，Foshan, China, September 24, 2023

[P29] "High-fidelity imaging, information transmission, and encryption through scattering media- Selected progress from 2020", International Forum on Microscopy 2023 (IFM2023), Zhongshan, China, September 10, 2023

[P30] "Biomimetic nanoplatform-based photoacoustic imaging and magnetic particle imaging for targeted cancer diagnosis in vivo", Optics Frontier: The 14th International Conference on Information Optics and Photonics (CIOP), Xi'an, China, August 9, 2023

[P31] "Deep-tissue optical imaging via energy conversion, optical modulation, and computing", Optics Frontier: The 14th International Conference on Information Optics and Photonics (CIOP), Xi'an, China, August 9, 2023

[P32] "光学分辨率光声显微成像面向多功能应用的研究探索"，2023 中国光学学会学术大会，Wuhan, China, July 30, 2023

[P33] "Seeing deterministic information from scattering randomness", PhotoniX Forum 2023, Hangzhou, China, May 26, 2023

[P34] "Seeing clearly into deep biological tissue via wavefront shaping: recent advances and perspectives", 2023 China Biomedical Engineering Conference and Medical Innovation Summit, Suzhou, China, May 20, 2023

[P35] "High-resolution optical focusing, imaging, stimulation, and encryption with scattered light", 2023 PAIR Conference, Hong Kong Polytechnic University, Hong Kong SAR, May 11, 2023

[P36] "基于小动物模型的光声/超声双模态分子影像用于肿瘤诊断和治疗", 中华医学会第一届全国超声医学青年学术论坛暨 2023 年深圳市超声医学学术年会，Shenzhen, China, April 23, 2023

[P37] "Manipulation of optical field through multimode fiber with wavefront shaping and its application for single neuron optogenetics at depths in tissue", The 16th International Conference on Photonics and Imaging in Biology and Medicine (PIBM), Haikou, China, March 30, 2023

[P38] "Shining focused light through scattering media with wavefront shaping", IEEE TENCON Advanced Photonics Workshop, Hong Kong, November 3, 2022

[P39] "基于光学波前整形技术的散射光聚焦及其应用优化", 2nd Computational Imaging Conference, Shanghai, China, October 10-12, 2022

[P40] "Photoacoustic Tomography and Wavefront Shaping: High-resolution Optical Imaging and Focusing at Depths in Biological Tissue", Biophotonics Congress: Biomedical Optics 2022, Fort Lauderdale, Florida, USA, April 24-27, 2022

[P41] "Shining new lights into deep biological tissue via wavefront shaping: a brief review of recent development and perspectives", International Conference on Biomedical and Health Informatics (ICBHI) 2021, Korea, November 12, 2021

[P42] "Wavefront shaping-empowered high-resolution optical focusing and stimulation at depths in biological tissue", SPIE Advanced Biophotonics Conference (ABC) 2021, Korea, November 6, 2021

[P43] "Recent development of optical wavefront shaping towards robust and optimum optical focusing and stimulation at depths in biological tissue", SPIE Photonics Asia 2021, Nantong, China, October 12, 2021

[P44] "散射光波前整形迭代式优化算法的效率和适应能力探索"，2021 国际计算成像会议，Hangzhou, September 26, 2021

[P45] "基于深度学习的深穿透光学分辨率光声显微成像"，2021 中国光学学会学术大会，Shenzhen, China, September 20, 2021

[P46] "Wavefront shaping empowered high-resolution optical focusing at depths in tissue and its application for single neuron optogenetics", 26th Optoelectronic and Communications Conference (OECC2021), Hong Kong SAR, China, July 7, 2021

[P47] "基于波前整形和光声效应的生物组织深层高分辨光学成像和操控：一些进展"，第十六届全国激光技术与光电子学学术会议，Shanghai, China, 2021

[P48] "基于波前整形赋能多模光纤的小动物颅下单神经元刺激"，机器视觉与智能光电检测技术及应用研讨会，Nanjing, China, 2021

[P49] "光声成像及其在小动物模型早期肿瘤诊断方面的应用研究"，第十二届海峡两岸超声医学高端论坛，Wuhan, China, 2021 (Plenary talk)

[P50] "光声多模态跨尺度成像"，第二届国际数字智能化诊疗技术大会，Guangzhou, China, 2021

[P51] "Deep-tissue optical focusing and its applications: Continuing efforts", 第四届光学青年科学家论坛, Ningbo, China, 2020

[P52] "Recent development in wavefront shaping-enabled optical focusing and its application towards deep-tissue single neuron stimulation", in Photonics Asia, Holography, Diffractive Optics, and Applications X, Beijing, China (2020) (online)

[P53] "Photoacoustic Diagnosis and Photothermal Treatment of Early Stage Liver Cancer in vivo assisted by Red Blood Cell Membrane Camouflaged Gold Nanostars", 中華醫學會第十次全國數字醫學學術年會, 2020 (*online*)

[P54] "COVID-19 and shining new light into body: Deep-tissue optical focusing, imaging, and stimulation empowered by wavefront shaping and photoacoustics", Zhejiang University OSA-SPIE Day of Light Seminar, 2020 (*online*)

[P55] "Photoacoustic imaging: principles, implementations, and its preliminary applications", 2019 年分子影像湖北省重點實驗室年會, Wuhan, China, 2019

[P56] "High-resolution optical focusing, imaging, and control at depths in tissue", in 2019 China Biomedical Engineering Conference, Jinan, China, 2019

[P57] "Generalization of deep-learning-based image reconstruction from varied sampled speckles", in SPIE Photonics Asia, Hangzhou, China, 2019

[P58] "Enhanced Mice Liver Cancer Photoacoustic Diagnosis and Photothermal Treatment with Red Blood Cell Membrane Camouflaged Gold Nanostars", in 2019 International Conference on Molecular Imaging and Minimally Invasive Therapy, Beijing, China, 2019

[P59] "Optical imaging through scattering media based on wavefront shaping and deep learning", the International Forum on Microscopy 2019, Beijing, China, 2019

[P60] "Synergy of light and sound for high-resolution optical focusing, imaging, and stimulation through and within scattering media", SPIE Optics + Photonics, San Diego, USA, 2019

[P61] "Enhanced in situ Liver Cancer Photoacoustic Imaging and Photothermal Therapy in Mice with Red Blood Cell Membranes Camouflaged Gold Nanostars", the 19th IEEE International Conference on Nanotechnology, Macau, China, 2019

[P62] "Wavefront shaping-enabled optical focusing and its application towards deep-tissue single neuron stimulation", Annual ShanghaiTech Symposium on Information Science and Technology, Shanghai, China, 2019

[P63] "Photoacoustic Diagnosis and Photothermal Treatment of Early Stage Liver Cancer in vivo assisted by Red Blood Cell Membranes Camouflaged Gold Nanostars", 首屆國際數字智能化診療技術大會, Guangzhou, China, 2019

[P64] "Synergy of light and sound for deep-tissue optical imaging and focusing", the 177th Meeting of the Acoustical Society of America, Louisville, KY, USA, 2019

[P65] "Deep-tissue optical diagnosis, treatment, and stimulation enabled by photoacoustics and wavefront shaping", 中國生物醫學工程學會第二届生物醫學光子學分會會員代表大會暨學術交流會, Haikou, China, 2019

[P66] "腫瘤及其邊界的光聲成像", 中華醫學會第八次全國數字醫學學術年會, Fuzhou, China, 2018

[P67] "基於光聲效應和波前整形的生物組織深層微米分辨率光學成像與刺激", 2018 粵港澳大灣區青年科學家微米納米技術協同創新論壇, Shenzhen, China, 2018

[P68] "Temporal evolutional single neuron optogenetics enabled by wavefront shaping – a pilot study", SPIE Photonics Asia, Beijing, China, 2018

[P69] "High-resolution deep-tissue optical imaging enabled by photoacoustics and wavefront shaping", SPIE Photonics Asia, Beijing, China, 2018

[P70] "Spatiotemporally evolutional optogenetics enabled by wavefront shaping", 2018 年中國生物醫學工程聯合學術年會, Shenzhen, China, 2018

[P71] "Shining new light into biological tissue: High-resolution optical imaging and stimulation at depths enabled by photoacoustics and wavefront shaping",2018 年第十届分子影像技術進展及應用研討會, Beijing, China, 2018

[P72] "Deep-tissue optical imaging, focusing, and stimulation enabled by photoacoustics and wavefront shaping", The Federation of Asian societies for molecular imaging 2018, Xiamen, China, 2018

[P73] "Synergy of light and sound for deep-tissue biomedical optical focusing and imaging", the 2018 Progress in Electromagnetics Research Symposium (PIERS 2018), Toyama, Japan, 2018

[P74] "Ultrasound-mediated high-resolution optical focusing and imaging in optically scattering media", the 18th IEEE International Conference on Nanotechnology, Cork, Ireland, 2018

[P75] "Guide-star assisted optical focusing and imaging at depths in tissue", the 10th International Conference on Information Optics and Photonics (CIOP), Beijing, China, 2018

[P76] "Deep-tissue photoacoustic imaging enhanced by wavefront engineering and molecular probes", the 2nd International Conference on Digital Medicine, Guangzhou, Guangdong, 2018

[P77] "Wavefront shaping-enhanced photoacoustic imaging", the International Conference on Biomedical Ultrasound (ICBMU), Hong Kong, China, 2017

[P78] "Focused and controllable optical delivery in complex media using wavefront shaping", the 14th International Conference on Photonics and Imaging in Biology and Medicine (PIBM 2017), Suzhou, China, 2017

[P79] "Reshaping light in deep tissue with ultrasonically guided optical focusing", the 1st International Conference on Optics, Photonics, and Materials, Nice, France, 2016

[P80] "Wavefront Engineering-Enabled Optical Focusing at Depths in Scattering Media", Frontiers in Optical Bioimaging Technologies, University of Hong Kong, Hong Kong, 2016

[P81] "Ultrasonically Guided Optical Focusing: Shining Focused Light into Deep Tissue", the 8th International Conference on Information Optics and Photonics, Shanghai, China, 2016

[P82] "Focusing Light Deep in Tissue with Ultrasound Guidestars", in Optical Society of America (OSA) Frontiers in Optics & Laser Science 2015, San Jose, USA, 2015

[P83] "Photoacoustically guided wavefront shaping (PAWS) for optical focusing beyond the diffusion limit in scattering media", College of Life Science and Technology, Huazhong University of Science and Technology, Wuhan. China, 2015

[P84] "Ultrasound-guided optical wavefront control for focusing in scattering media," the Optical Society of America (OSA) Controlled Light Propagation through Complex Media Incubator, Washington DC, USA, 2014.

PART III SERVICE & PROFESSIONAL ACTIVITIES

University/Departmental Duties

- Shenzhen Research Institute Human Subjects Ethics Committee, November 2021 — October 2026
- University Research Committee, Human Subjects Ethics Sub-committee (renamed to PolyU Institutional Review Board from November 2020), July 2019 — June 2024
- Deputy Leader of Department Taught Postgraduate Program, January 2021 —
- Department Research Seminar Coordinator, 2020 – 2021
- Department Management Committee (DMC), July 2019 — June 2022
- Department Health, Safety and Environmental Committee, July 2019 — June 2020
- Department Coordinator for Shenzhen Base and Mainland China Opportunity, July 2019 —
- Department Research Committee (DRC), July 2018 —
- Department Enrollment Liaison Officer for Chinese Mainland (JEE) Admission, July 2018 —

Membership

- The Optical Society of America (OSA/Optica), Senior member
- The International Society for Optics and Photonics (SPIE)
- Institute of Electrical and Electronics Engineers (IEEE)
- World Association for Chinese Biomedical Engineers (WACBE), Lifetime member
- Chinese Society of Biomedical Engineering (CSBME), Senior member
- Chinese Optical Society (COS), Senior member
- Chinese Society of Optical Engineering (CSOE), Senior member

Board Member

- 中国光学工程学会标准化工作委员会，委员，since June 2025
- 海峡两岸医药卫生交流协会超声医学分会，常委，since May 2025
- 世界华人生物医学工程学会(World Association for Chinese Biomedical Engineers, WACBE)理事会，理事, since July 2024
- 中国激光杂志社香港分社，社长，since June 2024
- 中国光学工程学会红外技术与应用专业委员会，委员，since June 2024
- 中国医药生物技术协会生物医学成像技术分会，委员，since November 2023

- 中国仪器仪表学会显微仪器分会，委员，since September 2023
- 海峽兩岸醫藥衛生交流協會超聲醫學分會，委員，since 2021
- 中國光學學會生物醫學光子學分會，常委，since 2021
- 廣東省高層次人才評審專家庫，專家，since 2021
- 中國超聲醫學工程學會儀器工程開發專委會，委員，since 2021
- 深圳市科技創新委員會 2020 年新冠應急防治專項第二批專案第二輪答辯評審會，主審, 2020
- 廣州市科技專家庫第一批港澳籍專家，since 2020
- 廣東省基礎與應用基礎研究基金委員會第一届學科諮詢專家組(醫學組)專家, since 2020
- 深圳市科技創新委員會 2020 年新型冠狀病毒感染應急防治并專項自由申報項目遠程答辯評審會, 主審, 2020
- 中國生物醫學工程學會,生物醫學光子學分會,委員, since 2019
- 人民衛生出版社重點項目《數字化肝膽外科學》, 編委, 2019
- 深圳市科技創新委員會，孔雀團隊/重點技術攻關項目答辯(醫療儀器組), 評審, since 2018

Journal Editorship

- Editorial Board Member, PhotoniX: Life, since 2024
- Editorial Board Member, Scientific Reports, since 2024
- Associate Editor, Advanced Imaging, since 2023
- Academic Editor, The Innovation Medicine, since 2023
- Associate Editor, Medical Physics, since August 2022
- Editor, Advanced Photonics Nexus, since 2022
- Guest Editor, Pharmaceutics, since 2022
- Academic Editor, The Innovation, since 2021
- Guest Editor, Photonics, since 2021
- Associate Editor, Medicine in Novel Technology and Devices (MEDNTD), since 2020
- Associate Editor, Journal of Visual Computing for Industry, Biomedicine, and Art (VCIBA) (under Springer), since 2019.
- Editor, Journal of Innovative Optics in Health and Science (JIOHS; SCI indexed), since 2018.
- Guest editor, Frontiers in Photonics, since 2020.
- Overseas editorial board member and topic editor, China Medical Devices, since 2015

Proposal reviewer

- Marsden Fund, New Zealand, since May 2025
- National Research Foundation of Korea, since May 2024

- European Research Council (ERC), since April 2022
- Research Foundation Flanders (FWO) Review College, the W&T7 project panel on Energy, Electrical Engineering, Electronics and Mechanics, from January 2022-December 2024
- European Science Foundation (ESF) College of Expert Reviewers, 2020
- National Natural Science Foundation of China (NSFC), since 2018
- Proposal reviewer for European Science Foundation, since 2019
- Proposal reviewer for US-Israel Binational Science Foundation, 2018
- Proposal reviewer for NWO (Netherlands Organization for Scientific Research), 2017

Journal Reviewer (alphabetically)**:**

- ACS Photonics
- ACS Sensor
- Advanced Intelligent Systems
- Advanced Photonics
- Advanced Photonics Nexus
- Advanced Science
- Advanced Functional Materials
- AIP Advance
- Analyst
- Applied Optics
- Applied Physics Express
- Applied Physics Letters
- APL Photonics
- Applied Sciences
- Biomaterials
- Biomedicines
- Biomedical Optics Express
- Cells
- Chinese Journal of Acoustics
- Chinese Optics Letters
- eLife
- eLight
- Frontiers in Bioengineering
- Frontiers of Optoelectronics
- Frontiers in Neuroscience
- High Power Laser Science and Engineering
- IEEE Transactions on Biomedical Engineering (TBME)
- IEEE Journal of Selected Topics in Quantum Electronics (JSTQE)
- IEEE Photonics Journal
- IEEE Transactions on Medical Imaging (TMI)

- iScience
- Journal of Acoustical Society of America (JASA)
- Journal of Applied Physics
- Journal of Applied Physiology
- Journal of Biomedical Optics (JBO)
- Journal of Innovative Optical Health Sciences (JIOHS)
- Journal of Optical Engineering
- Journal of the Optical Society of America A (JOSA A)
- Journal of Physics: Photonics
- Journal of Physics D: Applied Physics
- Laser and Photonics Review
- Light: Science and Applications
- Light: Advanced Manufacturing
- Measurement Science and Technology
- Medicine in Novel Device and Technology
- Microscopy and Microanalysis
- Micromachines
- Microsystems and Nanoengineering
- Nanoscale
- Nano Convergence
- Nature Communications
- Optica
- Optical Engineering
- Optics Communications
- Optics and Lasers in Engineering
- Optics and Lasers Technology
- Optics Express
- Optics Letters
- Optik
- Opto-Electronic Advances
- OSA Continuum
- Photoacoustics
- Photonics
- Photonix
- Photonics Research
- Physica Scripta
- Physics in Medicine and Biology
- Proceedings of the National Academy of Sciences (PNAS)
- Research
- Results in Physics

- Review of Scientific Instruments (RSI)
- Sensors
- Science Advance
- Scientific Reports
- The Innovation
- Ultrasonics
- Ultrasound in Medicine and Biology (UMB)
- View
- Visual Computing for Industry, Biomedicine, and Art (VCIBA)