白龙

个人信息

- **电子邮箱:** b.long@link.cuhk.edu.hk, b.long@ieee.org, bailong2021@outlook.com
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- **地址:** 香港特别行政区，新界沙田马料水，香港中文大学何善衡工程学大楼424室
- **个人主页：** longbai-cuhk.github.io

教育经历

香港中文大学，电子工程学系 **2021.08-2025.07**
- 学位 & 专业：博士，电子工程学
- 导师：任洪亮教授，机器人感知与人工智能研究组
- 香港中文大学校长博士奖学金计划

北京理工大学，光电学院 **2017.09-2021.06**
- 学位 & 专业：学士，光电信息科学与工程
- CGPA: 3.55/4.0
- 导师：高昆教授

实习与访问经历

英国剑桥大学，工程系 **2021.12-2021.12**
- 项目：冬季学校-用于软体机器人的智能材料
- 课程：智能（自愈、传感、驱动）材料基础、生物学和设计、驱动、传感和控制/软机器人中的人工智能

北京理工大学，信息与电子学院 **2020.08-2020.11**
- 职位：数字图像处理研究实习生
- 导师：鲁溟峰博士

美国迈阿密大学，电气与计算机工程系 **2020.06-2020.08**
- 职位: 医学图像分析研究实习生
- 导师: Mohamed Abdel-Mottaleb教授，Fellow of IEEE，讲席教授

学术奖项

- **香港中文大学校长博士奖学金计划** **2021.08-2025.07**
- **最佳学生论文奖，ICBIR 2023**（主讲作者） **2023**
- **最佳海报奖, IEEE ICRA 2023 手术机器人研讨会**（主讲作者） **2023**
- **IEEE ICRA 2023 RAS 旅行补助金奖**（第一作者） **2023**
- **优胜奖，EMedIC Global** **2021**
- **北京理工大学学业奖学金** **2020**

论文发表

(†共同第一作者，*通讯作者。)

会议论文：

[1] **Sample-adaptive Augmentation for Point Cloud Recognition Against Real-world Corruptions**
Jie Wang, Lihe Ding, Tingfa Xu, Shaocong Dong, Xinli Xu, **Long Bai**, Jianan Li*
*International Conference on Computer Vision (**ICCV**), 2023. (**CCF-A**)*

[2] **LLCaps: Learning to Illuminate Low-Light Capsule Endoscopy with Curved Wavelet Attention and Reverse Diffusion**
Long Bai†, Tong Chen†, Yanan Wu, An Wang, Mobarakol Islam, Hongliang Ren*
*International Conference on Medical Image Computing and Computer Assisted Intervention (**MICCAI**), 2023. (**CCF-B**)*
(Oral, Top 3%)

[3] **Revisiting Distillation for Continual Learning on Visual Question Localized-Answering in Robotic Surgery**
Long Bai†, Mobarakol Islam†, Hongliang Ren*
*International Conference on Medical Image Computing and Computer Assisted Intervention (**MICCAI**), 2023. (**CCF-B**)*

[4] **Co-Attention Gated Vision-Language Embedding for Visual Question Localized-Answering in Robotic Surgery**

Long Bai†, Mobarakol Islam†, Hongliang Ren*
*International Conference on Medical Image Computing and Computer Assisted Intervention (**MICCAI**), 2023. (**CCF-B**)*

[5] **Surgical-VQLA: Gated Vision-Language Embedding for Visual Question Localized-Answering in Robotic Surgery**
Long Bai†, Mobarakol Islam†, Lalithkumar Seenivasan, Hongliang Ren*
*IEEE International Conference on Robotics and Automation (**ICRA**), 2023. (**CCF-B**)*
(RAS旅行补助金奖)

[6] **Landmark Detection using Transformer Toward Robot-assisted Nasal Airway Intubation**
Tianhang Liu, Hechen Li, **Long Bai**, Yanan Wu, An Wang, Mobarakol Islam, Hongliang Ren
*International Conference on Biomimetic Intelligence and Robotics & Medical Robotics Forum (**ICBIR**), 2023.*
(最佳学生论文奖)

[7] **Semi-supervised Learning for Segmentation of Bleeding Regions in Video Capsule Endoscopy**
Hechen Li, Yanan Wu, **Long Bai**, An Wang, Tong Chen, Hongliang Ren
*International Conference on Biomimetic Intelligence and Robotics & Medical Robotics Forum (**ICBIR**), 2023*

[8] **Deep Reinforcement Learning-Based Control for Stomach Coverage Scanning of Wireless Capsule Endoscopy**
Yameng Zhang†, **Long Bai**†, Li Liu*, Hongliang Ren*, Max Q.-H. Meng
*IEEE International Conference on Robotics and Biomimetics (**ROBIO**), 2022.*

[9] **The Influence of Age and Gender Information on the Diagnosis of Diabetic Retinopathy: Based on Neural Network**
Long Bai†*, Sihang Chen†, Mingyang Gao†, Lelia Abdelrahman, Manal Al Ghamdi, Mohamed Abdel-Mottaleb
*International Conference of the IEEE Engineering in Medicine and Biology Society (**EMBC**), 2021.*

期刊论文：

[1] **Joint Sparse Representations and Coupled Dictionary Learning in Multi-Source Heterogeneous Image Pseudo-color Fusion**
Long Bai, Shilong Yao, Kun Gao*, Yanjun Huang, Ruijie Tang, Hong Yan, Max Q.-H. Meng, Hongliang Ren*
IEEE Sensors Journal, 2023, Accepted. (IF: 4.3)

[2] **Rethinking Exemplars for Continual Semantic Segmentation in Endoscopy Scenes: Entropy-based Mini-Batch Pseudo-Replay**
Guankun Wang†, **Long Bai**†, Yanan Wu, Tong Chen, Hongliang Ren*
*Computers in Biology and Medicine (**CBM**), 2023. (IF: 7.7)*

[3] **Rethinking Pain Communication for Dementia: Interaction Design using E-textile**
Yanheng Li, **Long Bai**, Yaxuan Mao, Hongliang Ren, Yu Qiao, Xin Tong, Ray LC*
Frontiers in Physiology, 2023. (IF: 4.0)

[4] **Two-stage Contextual Transformer-based Convolutional Neural Network for Airway Extraction from CT Images**
Yanan Wu, Shuiqing Zhao, Shouliang Qi*, Jie Feng, Haowen Pang, Runsheng Chang, **Long Bai**, Mengqi Li, Shuyue Xia, Wei Qian, Hongliang Ren*
Artificial Intelligence in Medicine, 2023. (IF: 7.5)

[5] **Domain Adaptive Sim-to-Real for Oropharyngeal Organs Segmentation**
Guankun Wang, Tian-Ao Ren, Jiewen Lai, **Long Bai**, Hongliang Ren*
*Medical & Biological Engineering & Computing (**MBEC**), 2023. (IF: 3.2)*

[6] **Transformer-based 3D U-Net for Pulmonary Vessel Segmentation and Artery-vein Separation from CT Images**
Yanan Wu, Shouliang Qi*, Meihuan Wang, Shuiqing Zhao, Haowen Pang, Jiaxuan Xu, **Long Bai**, Hongliang Ren*
*Medical & Biological Engineering & Computing (**MBEC**), 2023. (IF: 3.2)*

[7] **An RNN-LSTM Enhanced Compact and Affordable Micro Force Sensing System for Interventional Continuum Robots with Interchangeable End-Effector Instruments**
Shilong Yao†, Ruijie Tang†, **Long Bai**, Hong Yan, Hongliang Ren*, Li Liu*
*IEEE Transactions on Instrument & Measurement (**T-IM**), 2022. (IF: 5.6)*

[8] **Transformer-based Disease Identification for Small-scale Capsule Endoscopy Dataset**
Long Bai, Liangyu Wang, Tong Chen, Yuanhao Zhao, Hongliang Ren*
Electronics, 2022. (IF: 2.9)

研讨会及海报展示：

[1] **Sim-to-Real Segmentation in Robot-assisted Transoral Tracheal Intubation**
Guankun Wang, Tian-Ao Ren, Jiewen Lai, **Long Bai**, Hongliang Ren*
*IEEE International Conference on Robotics and Automation (**ICRA**), 2023, Workshop on New Evolutions in Surgical Robotics.*

(最佳海报奖)

[2] **The Exploration and Evaluation of Using Neural Style Transfer in Generating Affective 360° Panoramic VR Environments**
Yanheng Li, **Long Bai**, Yaxuan Mao, Xuening Peng, Zehao Zhang, Xin Tong*, Ray LC*
*IEEE Conference on Virtual Reality and 3D User Interfaces (**VR**), 2023, Poster. (**CCF-A**)*

预印本及审稿中：

[1] **Surgical-VQLA++: Adversarial Contrastive Learning for Calibrated Robust Visual Question Localized-Answering in Robotic Surgery**
Long Bai†, Guankun Wang†, Mobarakol Islam†, Lalithkumar Seenivasan, An Wang, Hongliang Ren*
Information Fusion, Under Review. (IF: 18.6)

[2] **Revisiting Consistent and Contrastive Augmentations in Semi-supervised Skill Assessment in Robotic Surgery**
Long Bai†, Qiaozhi Tan†, Wenzhen Dong, Lalithkumar Seenivasan, Beilei Cui, An Wang, Mobarakol Islam, Hongliang Ren*
*International Journal for Computer Assisted Radiology and Surgery (**IJCARS**)-IPCAI 2024, Under Review. (IF: 3.0)*

[3] **Towards Open-Set Surgical Activity Recognition in Robot-assisted Surgery**
Long Bai†, Guankun Wang†, Jie Wang, Xiaoxiao Yang, Huxin Gao, Xin Liang, An Wang, Mobarakol Islam, Hongliang Ren*
*IEEE International Conference on Robotics and Automation (**ICRA**), Under Review, 2024. (**CCF-B**)*

[4] **PedSemiSeg: Pedagogy-inspired Semi-supervised Polyp Segmentation**
An Wang, Haoyu Ma, **Long Bai**, Yanan Wu, Mengya Xu, Yang Zhang, Mobarakol Islam, Hongliang Ren*
*IEEE International Conference on Robotics and Automation (**ICRA**), Under Review, 2024. (**CCF-B**)*

[5] **Affecting Audience Valence and Arousal in 360 Immersive Environments: How Powerful Neural Style Transfer Is?**
Yanheng Li, **Long Bai**, Yaxuan Mao, Xuening Peng, Zehao Zhang, Xin Tong*, Ray LC*
International Conference on Human-Computer Interaction (HCII), 2024, Under Review.

[6] **Learning Monocular Depth and Ego-motion for Multimodal Wireless Capsule Endoscopy**
Liangyu Wang†, **Long Bai**†, Shilong Yao, Yanheng Li, Sishen Yuan, Yanan Wu, Yang Zhang, Max Q.-H. Meng, Zhen Li, Hongliang Ren*
Artificial Intelligence in Medicine, 2023, Under Review. (IF: 7.5)

[7] **Data-driven 3D Tactile Cues with Intermediate Soft Interfaces towards Training Needle Insertions**
Ruijie Tang†, Shilong Yao†, **Long Bai**, Hong Yan, Max Q.-H. Meng, Hongliang Ren*
IEEE Sensors Journal, 2023, Under 2nd Review. (IF: 4.3)

[8] **Surgical Tool Classification and Localization: Results and Methods from the MICCAI 2022 SurgToolLoc Challenge**
Aneeq Zia, Kiran Bhattacharyya, Xi Liu, Max Berniker, Ziheng Wang, Rogerio Nespolo, …, **Long Bai**, et al.
ArXiv Preprint ArXiv:2305.07152.

[9] **Privacy-Preserving Synthetic Continual Semantic Segmentation for Robotic Surgery**
Mengya Xu†, Mobarakol Islam†, **Long Bai**, Hongliang Ren*
*IEEE Transactions on Medical Imaging (**T-MI**), 2023, Under 2nd Review. (IF: 10.6)*

学术服务：

- **期刊审稿：**
  IEEE Transactions on Medical Imaging (T-MI)
  IEEE Transactions on Circuits and Systems for Video Technology (T-CSVT)
  IEEE Transactions on Instrumentation and Measurement (T-IM)
  IEEE Open Journal of Instrumentation & Measurement (OJIM)
  Information Fusion (Info. Fusion)
  Medical & Biological Engineering & Computing (MBEC)
  Journal of Systems and Control Engineering (JSCE)
  Journal of Medical Robotics Research (JMRR)

- **会议审稿：**
  International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)
  IEEE International Conference on Robotics and Automation (ICRA)
  International Conference on Information Processing in Computer-Assisted Interventions (IPCAI)
  ACM CHI Conference on Human Factors in Computing Systems (CHI)
  IEEE Conference on Virtual Reality and 3D User Interfaces (VR)
  ACM SIGCHI Conference on Computer-Supported Cooperative Work & Social Computing (CSCW)
  ACM Symposium of Eye Tracking Research & Applications (ETRA)

ACM Conference on Intelligent User Interfaces (IUI)

- **特邀演讲：**
  2023, *Surgical Visual Question Localized-Answering*, Pre-ICRA Online
  2022, *Lifelong Learning: Background, Methodology and Applications*, HKUST UG

教学经历

- **毕业论文指导：**
  2023毕业生（与任洪亮教授）：
  刘天航，香港中文大学硕士，使用 Transformer 进行气道插管地标检测
  Chung Hei Tse，香港中文大学学士，通过 Three.js在医学教育中应用基于Web的虚拟现实
  2022毕业生（与任洪亮教授）：
  王良宇，香港中文大学硕士，基于多模态融合的内窥镜感知算法
  赵元浩，香港中文大学硕士，基于超声的穿刺针分割
  Chi Hung Li，香港中文大学学士，使用虚拟现实模块开发图像引导机器人程序

- **助教：**

工程概率论（ENGG2760），CUHK，与龙祎教授	2023.09-2023.12
智能可穿戴电子学（ELEG5757），CUHK，与任洪亮教授	2023.01-2023.04
机器人感知与智能（ELEG3103），CUHK，与任洪亮教授	2023.01-2023.04
工程概率论（ENGG2760），CUHK，与任洪亮教授	2022.09-2022.12
微电子器件和电路（ELEG3201），CUHK，与潘江鹏教授	2022.01-2022.04
工程概率论（ENGG2760），CUHK，与任洪亮教授	2021.09-2021.12

标化测试：

- **托福：**117 (阅读 30，听力 30，口语 27，写作 30), 2020.09.16
- **GRE：**Verbal 168 (98%), Quantitative 170 (96%), Analytical Writing 4.0 (55%), 2020.10.11

技能：

- **精通：**Python, PyTorch, MATLAB, C/C++, LaTeX, Ubuntu
- **擅长：**Adobe Premiere, Unity3D

社会工作与荣誉：

季军，香港科技创新界国庆杯足球赛	2023
殿军，香港中文大学校友杯足球赛	2022
冠军，北京理工大学超级足球联赛	2021
亚军，北京房山区五人制足球赛	2019
北京理工大学优秀学生记者	2018