

## 白龙

## 个人信息

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## 教育经历

香港中文大学, 电子工程学系 2021.08-2025.07

- ✦ 学位 & 专业: 哲学博士, 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: [鲁溪峰博士](#)

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\*  
19<sup>th</sup> International Conference on Computer Vision (ICCV), 2023.
- [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\*  
26<sup>th</sup> International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), 2023.  
(Oral, Top 3%)

- [3] **Revisiting Distillation for Continual Learning on Visual Question Localized-Answering in Robotic Surgery**  
**Long Bai**<sup>†</sup>, Mobarakol Islam<sup>†</sup>, Hongliang Ren\*  
 26<sup>th</sup> International Conference on Medical Image Computing and Computer Assisted Intervention (**MICCAI**), 2023.
- [4] **Co-Attention Gated Vision-Language Embedding for Visual Question Localized-Answering in Robotic Surgery**  
**Long Bai**<sup>†</sup>, Mobarakol Islam<sup>†</sup>, Hongliang Ren\*  
 26<sup>th</sup> International Conference on Medical Image Computing and Computer Assisted Intervention (**MICCAI**), 2023.
- [5] **Surgical-VQLA: Gated Vision-Language Embedding for Visual Question Localized-Answering in Robotic Surgery**  
**Long Bai**<sup>†</sup>, Mobarakol Islam<sup>†</sup>, Lalithkumar Seenivasan, Hongliang Ren\*  
 40<sup>th</sup> IEEE International Conference on Robotics and Automation (**ICRA**), 2023.  
**(RAS Travel Grant Award)**
- [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.  
**(Best Student Paper Award)**
- [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<sup>†</sup>, **Long Bai**<sup>†</sup>, Li Liu\*, Hongliang Ren\*, Max Q.-H. Meng  
 18<sup>th</sup> 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**<sup>†\*</sup>, Sihang Chen<sup>†</sup>, Mingyang Gao<sup>†</sup>, Lelia Abdelrahman, Manal Al Ghamdi, Mohamed Abdel-Mottaleb  
 43<sup>rd</sup> International Conference of the IEEE Engineering in Medicine and Biology Society (**EMBC**), 2021.

#### 期刊论文:

- [1] **Rethinking Exemplars for Continual Semantic Segmentation in Endoscopy Scenes: Entropy-based Mini-Batch Pseudo-Replay**  
 Guankun Wang<sup>†</sup>, **Long Bai**<sup>†</sup>, Yanan Wu, Tong Chen, Hongliang Ren\*  
 Computers in Biology and Medicine (**CBM**), 2023. (IF: 7.7)
- [2] **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)
- [3] **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)
- [4] **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)
- [5] **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)

- [6] **An RNN-LSTM Enhanced Compact and Affordable Micro Force Sensing System for Interventional Continuum Robots with Interchangeable End-Effector Instruments**  
Shilong Yao<sup>†</sup>, Ruijie Tang<sup>†</sup>, **Long Bai**, Hong Yan, Hongliang Ren\*, Li Liu\*  
*IEEE Transactions on Instrument & Measurement (T-IM)*, 2022. (IF: 5.6)
- [7] **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\*  
*40<sup>th</sup> IEEE International Conference on Robotics and Automation (ICRA)*, 2023, *Workshop on New Evolutions in Surgical Robotics*.  
**(Best Poster Award)**
- [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\*  
*30<sup>th</sup> IEEE Conference on Virtual Reality and 3D User Interfaces (VR)*, 2023, *Poster*.

预印本及海报展示:

- [1] **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*.
- [2] **Learning Monocular Depth and Ego-motion for Multimodal Wireless Capsule Endoscopy**  
Liangyu Wang<sup>†</sup>, **Long Bai**<sup>†</sup>, 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*.
- [3] **Revisiting Consistent and Contrastive Augmentations in Semi-supervised Skill Assessment in Robotic Surgery**  
**Long Bai**<sup>†</sup>, Qiaozhi Tan<sup>†</sup>, Wenzhen Dong, Lalithkumar Seenivasan, Beilei Cui, An Wang, Mobarakol Islam, Hongliang Ren\*  
*International Journal for Computer Assisted Radiology and Surgery (IJCARs)*, *IPCAI 2024 Special Issue*, *Under Review*.
- [4] **Towards Open-Set Surgical Activity Recognition in Robot-assisted Surgery**  
**Long Bai**<sup>†</sup>, Guankun Wang<sup>†</sup>, Jie Wang, Xiaoxiao Yang, Huxin Gao, Xin Liang, An Wang, Mobarakol Islam, and Hongliang Ren\*  
*40<sup>th</sup> IEEE International Conference on Robotics and Automation (ICRA)*, *Under Review*, 2023.
- [5] **Privacy-Preserving Synthetic Continual Semantic Segmentation for Robotic Surgery**  
Mengya Xu<sup>†</sup>, Mobarakol Islam<sup>†</sup>, **Long Bai**, Hongliang Ren\*  
*IEEE Transactions on Medical Imaging (T-MI)*, 2023, *Under 2<sup>nd</sup> Review*.
- [6] **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, *Under 3<sup>rd</sup> Review*.

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)

Medical & Biological Engineering & Computing (MBEC)  
 IEEE Open Journal of Instrumentation & Measurement (OJIM)  
 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)  
 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:

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 |