LUYANG LUO

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RESEARCH SUMMARY

I develop AI systems for healthcare that span patient communication, clinical decision-making, and model reliability. Specifically, I build (1) generative tools that translate complex diagnostic information into accessible formats for patients, (2) multimodal models integrating medical imaging with clinical records for diagnosis and treatment planning, and (3) methods ensuring AI reliability and efficiency across diverse populations and clinical settings. This positions AI not as a replacement for clinicians but as infrastructure for continuously improving healthcare.

ACADEMIC POSITIONS

Senior Postdoctoral Research Fellow 09/2025 – present
Postdoctoral Research Fellow 07/2024 – 09/2025
Harvard University, Department of Biomedical Informatics
Advisor: Dr. Pranav Rajpurkar

Postdoctoral Fellow 09/2022 – 06/2024
The Hong Kong University of Science and Technology, Department of Computer Science and Engineering
Advisor: Dr. Hao Chen

EDUCATION

PhD in Computer Science and Engineering 08/2018 – 07/2022
The Chinese University of Hong Kong, Department of Computer Science and Engineering
Advisors: Dr. Pheng-Ann Heng & Dr. Tien-Tsin Wong
Thesis: *Understanding and Learning from Imperfect Data for Medical Image Diagnosis*.

BSc in Computer Science and Engineering 09/2013 – 07/2018
The Chinese University of Hong Kong, Department of Computer Science and Engineering

RESEARCH WORKS (Google Scholar)

Peer-Reviewed Works *: joint first authorship

Generative AI for Population Health and Care Delivery

[1] **L. Luo***, S. E. Kim*, X. Zhang, J. M. Kernbach, R. Kenia, J. Acosta, L. Nathanson, A. Haimovich, A. Rodman, E. Goh, J. Chen, N. Shah, D. A. Kim, J. Zou, F. Mahmood, J. Kather, M. Lungren, A. Karthikesalingam, V. Natarajan, E. Topol, and P. Rajpurkar, "A Clinical Environment Simulator Framework for Healthcare AI Performance Assessment," ***Nature Medicine***, accepted in 2026

[2] T. M. Kim*, **L. Luo***, S. E. Kim, A. K. Manrai, E. Topol, P. Rajpurkar. "The Doctor Will Agree With You Now: Sycophancy of Large Language Models in Multi-Turn Medical Conversations," ***Workshop on Linguistic Analysis for Health***, accepted in 2026. **[Oral Presentation]**

[3] **L. Luo***, E. Chen*, X. Zhang, J. N. Acosta, B. T. Jin, F. Gunturkun, C. Rose, C. Preiksaitis, B. Suffoletto, P. Rajpurkar, and D. A. Kim, "ED-Explain: Personalized Video Instructions for Patients Discharged from the Emergency Department," ***Pacific Symposium on Biocomputing (PSB)***, 2026.

[4] E. Chen*, **L. Luo***, F. Gunturkun, S. Sambara, R. Arora, B. T. Jin, P. Rajpurkar, and D. A. Kim, "Evaluation of Large Language Models as Emergency Department Revisit Predictors," ***Pacific Symposium on Biocomputing (PSB)***, 2026. **[Oral Presentation]**

[5] **L. Luo**, J. Vairavamurthy, X. Zhang, A. Kumar, R. R. Ter-Oganesyan, S. T. Schroff, D. Shilo, R. Hossain, M. Moritz, and P. Rajpurkar, "ReXplain: Translating Radiology into Patient-Friendly Video Reports," ***AIMedHealth, PMLR***, 2025. **[Best Paper]**

Multimodal Medical Image Analysis

[6] **L. Luo**, M. Wu, M. Li, Y. Xin, Q. Wang, V. Vardhanabhuti, W. CW Chu, Z. Li, J. Zhou, P. Rajpurkar, and H. Chen, "A Large Model for Non-invasive and Personalized Management of Breast Cancer from Multiparametric MRI," ***Nature Communications***, 2025.

[7] **L. Luo**, X. Wang, Y. Lin, X. Ma, A. Tan, R. Chan, V. Vardhanabhuti, W. C. W. Chu, K.-T. Cheng, and H. Chen, "Deep Learning in Breast Cancer Imaging: A Decade of Progress and Future Directions," ***IEEE Reviews in Biomedical Engineering***, 2025. **[Featured Article]**

[8] M. Baharoon*, **L. Luo***, M. Moritz, A. Kumar, S. E. Kim, X. Zhang, M. Zhu, K. Kleinschmidt, S. S. D. Jaliparthi, S. Suryadevara, R. Akula, M. Marino, W. Lei, I. E. Hamamci, and P. Rajpurkar, "State-of-the-Art Text-prompted Medical Segmentation Models Struggle to Ground Chest CT Findings," ***Machine Learning for Healthcare (MLHC)***, 2025.

AI Model Generalizability & Robustness

[9] **L. Luo**, X. Huang, M. Wang, Z. Wan, and H. Chen, "Medical Image Debiasing by Learning Adaptive Agreement from a Biased Council," ***Medical Image Analysis***, 2025.

[10] Y. Wang*, **L. Luo***, M. Wu, Q. Wang, and H. Chen, "Learning Robust Medical Image Segmentation from Multi-source Annotations," ***Medical Image Analysis***, 2025.

[11] **L. Luo**, D. Xu, H. Chen, T.-T. Wong, and P.-A. Heng, "Pseudo Bias-balanced Learning for Debiased Chest X-ray Classification," in ***Medical Image Computing and Computer Assisted Intervention (MICCAI)***, 2022.

[12] **L. Luo**, H. Chen, Y. Xiao, Y. Zhou, X. Wang, V. Vardhanabhuti, M. Wu, C. Han, Z. Liu, X. H. B. Fang, E. Tsougenis, H. Lin, and P.-A. Heng, "Rethinking Annotation Granularity for Overcoming Shortcuts in Deep Learning-based Radiograph Diagnosis: A Multicenter Study," ***Radiology: Artificial Intelligence***, 2022.

Label-Efficient Deep Learning for Medical Imaging

[13] H. Wang*, **L. Luo***, F. Wang, R. Tong, Y.W. Chen, H. Hu, L. Lin, and H. Chen, "Rethinking Multiple Instance Learning for Whole Slide Image Classification: A Bag-Level Classifier is a Good Instance-Level Teacher," ***IEEE Transactions on Medical Imaging***, 2024.

[14] Z. Chai*, **L. Luo***, H. Lin, P.-A. Heng, and H. Chen, "Deep Omni-supervised Learning for Rib Fracture Detection from Chest Radiology Images," ***IEEE Transactions on Medical Imaging***, 2024.

[15] **L. Luo***, Y. Li*, H. Lin, P.-A. Heng, and H. Chen, "Scale-aware Super-resolution Network with Dual Affinity Learning for Lesion Segmentation from Medical Images," ***IEEE Transactions on Neural Networks and Learning Systems***, 2024.

[16] **L. Luo***, H. Chen*, Y. Zhou, H. Lin, and P.-A. Heng, "OXnet: Deep Omni-Supervised Thoracic Disease Detection from Chest X-Rays," ***Medical Image Computing and Computer Assisted Intervention (MICCAI)***, 2021.

[17] Y. Li*, **L. Luo***, H. Lin, H. Chen, and P.-A. Heng, "Dual-Consistency Semi-supervised Learning with Uncertainty Quantification for COVID-19 Lesion Segmentation from CT Images," ***Medical Image Computing and Computer Assisted Intervention (MICCAI)***, 2021. **[Oral Presentation]**

[18] **L. Luo***, L. Yu*, H. Chen, Q. Liu, X. Wang, J. Xu, and P.-A. Heng, "Deep Mining External Imperfect Data for Chest X-ray Disease Screening," ***IEEE Transactions on Medical Imaging***, 2020.

[19] **L. Luo**, H. Chen, X. Wang, Q. Dou, H. Lin, J. Zhou, G. Li, and P.-A. Heng, "Deep Angular Embedding and Feature Correlation Attention for Breast MRI Cancer Analysis," ***Medical Image Computing and Computer Assisted Intervention (MICCAI)***, 2019.

[20] J. Zhou*, **L. Luo***, Q. Dou, H. Chen, C. Chen, G.-J. Li, Z.-F. Jiang, and P.-A. Heng, "Weakly-supervised 3D Deep Learning for Breast Cancer Classification and Localization of the Lesions in MR Images," ***Journal of Magnetic Resonance Imaging***, 2019.

Selected Co-authored Journal Articles

[21] Y. Nie*, S. He*, Y. Bie*, Y. Wang, Z. Chen, S. Yang, Z. Cai, H. Wang, X. Wang, **L. Luo**, M. Wu, X. Wu, R. C. K. Chan, Y. M. Lau, Y. Zheng, P. Rajpurkar, and H. Chen, "An Explainable Biomedical Foundation Model via Large-Scale Concept-Enhanced Vision-Language Pre-training," ***Nature Biomedical Engineering***, accepted in 2026.

[22] S. Johri, **L. Luo**, H.-Y. Zhou, T. Brenner, S. Elamin, M. E. Geissler, T. M. Berzin, and P. Rajpurkar, "A Clinician-Guided Framework for Endoscopic AI: Developing PanEndoAtlas and Benchmarking Foundation Models Across the Full GI Spectrum," ***Pacific Symposium on Biocomputing (PSB)***, 2026. **[Oral Presentation]**

[23] S. Sambara, S. E. Kim, X. Zhang, **L. Luo**, S. Johri, M. Baharoon, D. H. Ro, and P. Rajpurkar, "3DReasonKnee: Advancing Grounded Reasoning in Medical Vision Language Models," ***Pacific Symposium on Biocomputing (PSB)***, 2026. **[Oral Presentation]**

[24] X. Zhang, J. N. Acosta, X. Yang, S. Adithan, **L. Luo**, H.-Y. Zhou, J. Miller, O. Huang, Z. Zhou, I. E. Hamamci, S. Bannur, K. Bouzid, X. Zhang, Z. Meng, A. Nicolson, B. Koopman, I. Baek, H. Ko, M. P. Ranjit, S. Srivastav, S. G. Sambanthan, and P. Rajpurkar, "Automated Chest X-ray Report Generation Remains Unsolved," ***Pacific Symposium on Biocomputing (PSB)***, 2026.

[25] Y. Bie, A. Tan, Z. Chen, Z. Cai, **L. Luo**, and H. Chen, "Knowledge-Enhanced Explainable Prompting for Vision-Language Models," ***AAAI Conference on Artificial Intelligence (AAAI)***, 2026.

[26] S. He, Y. Nie, H. Wang, S. Yang, Y. Wang, Z. Cai, Z. Chen, Y. Xu, **L. Luo**, H. Xiang, X. Lin, M. Wu, Y. Peng, G. Shih, Z. Xu, X. Wu, Q. Wang, R. C. K. Chan, V. Vardhanabhuti, W. C. W. Chu, Y. Zheng, P. Rajpurkar, K. Zhang, and H. Chen, "GSCo: Towards Generalizable AI in Medicine via Generalist-Specialist Collaboration," ***Nature Biomedical Engineering***, accepted in 2025.

[27] E. Chen, A. Saenz, O. Banerjee, H. Marklund, X. Zhang, S. Johri, H.-Y. Zhou, **L. Luo**, S. Adithan, K. Wu, S. Dogra, V. J. Reddi, D. Buensalido, H. Kavnoudias, R. Kloeckner, L. Müller, E. Salinas-Miranda, M. J. Veloza Vega, J. Kolck, T. Penzkofer, D. Ueda, S. L. Walston, A. A. Quispe-Cornejo, M. Salvagno, C. Lee, J. Fournier, R. P. Castillo, C. Luna, T. Bahramipour, A. Zuback, R.

Braren, P. Jiraskova, Y. Wannasopha, P. Khumrin, D. S. W. Lim, J. T. P. D. Hallinan, Z. Jiao, T. Yi, J. M. Plasencia Martinez, N. I. Casado Alarcon, F. A. Fellner, J. F. Niedermair, D. Wu, D. Kim, J. Haubold, L. Heiliger, D. Pérez-Chada, P. Pratesi, R. Cummings, N. Razavian, A. Oikonomou, W. T. Tran, T. Küstner, S. Afat, A. N. Dula, J. F. Rousseau, F. Hržić, M. Fuchsjäger, and P. Rajpurkar, "International retrospective observational study of continual learning for AI on endotracheal tube placement from chest radiographs," ***NEJM AI***, 2025.

[28] L. Wu, J. Zhuang, Y. Zhou, S. He, J. Ma, **L. Luo**, X. Wang, X. Ni, X. Zhong, M. Wu, Y. Zhao, X. Duan, V. Vardhanabhuti, P. Rajpurkar, and H. Chen, "Large-Scale Generative Tumor Synthesis in Computed Tomography Images for Improving Tumor Recognition," ***Nature Communications***, 2025.

[29] S. Yang, Z. Cai, **L. Luo**, N. Ma, S. Xu, and H. Chen, "SurgPETL: Parameter-Efficient Image-to-Surgical-Video Transfer Learning for Surgical Phase Recognition," ***IEEE Transactions on Medical Imaging***, 2025.

[30] J. Zhuang, **L. Luo**, and H. Chen, "Advancing Volumetric Medical Image Segmentation via Global-Local Masked Autoencoder," ***IEEE Transactions on Medical Imaging***, 2025. [**Featured Article**]

[31] C. Jin, **L. Luo**, H Lin, J Hou, and H. Chen, "HMIL: Hierarchical Multi-Instance Learning for Fine-Grained Whole Slide Image Classification," ***IEEE Transactions on Medical Imaging***, 2025.

[32] J. N. Acosta, S. J. Adams, J. Kernbach, R. Hardy, S. E. Kim, **L. Luo**, X. Zhang, S. Johri, M. Baharoon, and P. Rajpurkar, "Voice-guided Orchestrated Intelligence for Clinical Evaluation (VOICE): A Voice AI Agent System for Prehospital Stroke Assessment," ***AIxMHC***, 2025.

[33] Z. Chen, **L. Luo**, Y. Bie, and H. Chen, "Dia-LLaMA: Towards Large Language Model-driven CT Report Generation," ***Medical Image Computing and Computer Assisted Intervention (MICCAI)***, 2025.

[34] H. Xiang*, Y. Xiao*, F. Li, C. Li, L. Liu, T. Deng, C. Yan, F. Zhou, X. Wang, J. Ou, Q. Lin, R. Hong, L. Huang, **L. Luo**, H. Lin, X. Lin, and H. Chen, "Development and Validation of an Interpretable Model Integrating Multimodal Information for Improving Ovarian Cancer Diagnosis," ***Nature Communications***, 2024.

[35] Z. Tang, X. Wang, A. R. Ran, D. Yang, A. Ling, J. C. Yam, X. Zhang, S. K. H. Szeto, J. Chan, C. Y. K. Wong, V. W. K. Hui, C. K. M. Chan, T. Y. Wong, C.-Y. Cheng, C. Sabanayagam, Y. C. Tham, G. Liew, G. Anantharaman, R. Raman, Y. Cai, H. Che, **L. Luo**, Q. Liu, Y. L. Wong, A. K. Y. Ngai, V. L. Yuen, N. Kei, T. Y. Y. Lai, H. Chen, C. C. Tham, P.-A. Heng, and C. Y. Cheung, "Deep Learning-Based Image Quality Assessment for Optical Coherence Tomography Macular Scans: A Multicentre Study," ***British Journal of Ophthalmology***, 2024.

[36] Y. Bie, **L. Luo**, Z. Chen, and H. Chen, "XCoOp: Explainable Prompt Learning for Computer Aided Diagnosis via Concept-guided Context Optimization," ***Medical Image Computing and Computer-Assisted Intervention (MICCAI)***, 2024.

[37] Z. Deng, **L. Luo**, and H. Chen, "Enable the Right to be Forgotten with Federated Client Unlearning in Medical Imaging," ***Medical Image Computing and Computer-Assisted Intervention (MICCAI)***, 2024.

[38] S. Yang, **L. Luo**, Q. Wang, and H. Chen, "Surgformer: Surgical Transformer with Hierarchical Temporal Attention for Surgical Phase Recognition," ***Medical Image Computing and Computer-Assisted Intervention (MICCAI)***, 2024.

[39] Y. Bie, **L. Luo**, and H. Chen, "MICA: Towards Explainable Skin Lesion Diagnosis via Multi-Level Image-Concept Alignment," ***AAAI Conference on Artificial Intelligence (AAAI)***, 2024.

[40] W. Li, **L. Luo**, and H. Chen, "Bootstrapping Radiography Pre-training via Siamese Masked Vision-Language Modeling with Complementary Self-distillation," ***IEEE International Conference on Bioinformatics and Biomedicine (IEEE BIBM)***, 2024.

[41] Y. Zhang, **L. Luo**, Q. Dou, and P.-A. Heng, "Triplet Attention and Dual-pool Contrastive Learning for Clinic-driven Multi-label Medical Image Classification," ***Medical Image Analysis***, 2023.

[42] Z. Deng, **L. Luo**, and H. Chen, "Scale Federated Learning for Label Set Mismatch in Medical Image Classification," ***Medical Image Computing and Computer Assisted Intervention (MICCAI)***, 2023.

[43] H. Wang, **L. Luo**, F. Wang, R. Tong, Y.-W. Chen, H. Hu, L. Lin, and H. Chen, "Iteratively Coupled Multiple Instance Learning from Instance to Bag Classifier for Whole Slide Image Classification," ***Medical Image Computing and Computer Assisted Intervention (MICCAI)***, 2023.

[44] Z. Chai, **L. Luo**, H. Lin, H. Chen, A. Han, and P.-A. Heng, "Deep Semi-supervised Metric Learning with Dual Alignment for Cervical Cancer Cell Detection," ***IEEE International Symposium on Biomedical Imaging (ISBI)***, 2022. **[Oral Presentation]**

[45] Z. Chai, H. Lin, **L. Luo**, P.-A. Heng, and H. Chen, "ORF-Net: Deep Omni-Supervised Rib Fracture Detection from Chest CT Scans," ***Medical Image Computing and Computer Assisted Intervention (MICCAI)***, 2022.

[46] Q. Liu, L. Yu, **L. Luo**, Q. Dou, and P. A. Heng, "Semi-supervised Medical Image Classification with Relation-driven Self-ensembling Model," ***IEEE Transactions on Medical Imaging***, 2020.

[47] X. Wang, H. Chen, A.-R. Ran, **L. Luo**, P. P. Chan, C. C. Tham, R. T. Chang, S. S. Mannil, C. Y. Cheung, and P.-A. Heng, "Towards Multi-center Glaucoma OCT Image Screening with Semi-supervised Joint Structure and Function Multi-task Learning," ***Medical Image Analysis***, 2020.

[48] X. Wang, F. Tang, H. Chen, **L. Luo**, Z. Tang, A.-R. Ran, C. Y. Cheung, and P.-A. Heng, "UD-MIL: Uncertainty-driven Deep Multiple Instance Learning for OCT Image Classification," ***IEEE Journal of Biomedical and Health Informatics***, 2020.

[49] A. R. Ran, C. Y. Cheung, X. Wang, H. Chen, **L. Luo**, P. P. Chan, M. O. M. Wong, R. T. Chang, S. S. Mannil, A. L. Young, H.-W. Yung, C. P. Pang, P.-A. Heng, and C. C. Tham, "Detection of Glaucomatous Optic Neuropathy with Spectral-Domain Optical Coherence Tomography: A Retrospective Training and Validation Deep-learning Analysis," ***The Lancet Digital Health***, 2019. **[Journal Cover Page]**

[50] X. Wang, H. Chen, **L. Luo**, A.-R. Ran, P. P. Chan, C. C. Tham, C. Y. Cheung, and P.-A. Heng, "Unifying Structure Analysis and Surrogate-driven Function Regression for Glaucoma OCT Image Screening," ***Medical Image Computing and Computer Assisted Intervention (MICCAI)***, 2019.

[51] H. Yang, **L. Luo**, J. Su, C. Lin, and B. Yu, "Imbalance Aware Lithography Hotspot Detection: A Deep Learning Approach," ***Journal of Micro/Nanolithography, MEMS, and MOEMS***, 2017.

Abstracts & Presentations

[1] **L. Luo**, X. Zhang, S. E. Kim, J. M. Kernbach, S. Adithan, E. K. Hong, J. Y. Kim, S. Roh, W. J. Kim, M. Lee, S. M. Yoon, H. Hwang, E. F. Sheybani, M. Mikhayel, K. B. Napier, S. M. Yoon, J. H. Kang, L. J. Fahrner, S. Datta, J.-O. Lee, M.-L. Ho, S. J. Adams, M. Moritz, and P. Rajpurkar, "Assessment of Large Multimodal Reasoning Model Performance and Chain-of-thought Quality in Chest Radiograph Interpretation," ***RSNA Cutting-edge Research***, 2025. **[Oral Presentation]**

[2] **L. Luo**, J. Vairavamurthy, M. Moritz, X. Zhang, H.-Y. Zhou, S. Kim, J. N. Acosta, S. Adithan, S. T. Schroff, R. R. Ter-Oganesyan, M. Wu, K. Kleinschmidt, B. Chrisler, S. Suryadevara, and P. Rajpurkar, "Generation of Patient-friendly Radiology Video Reports by an Integrated AI System," ***Annual Meeting of Society for Imaging Informatics in Medicine (SIIM)***, 2025. **[Oral Presentation]**

[3] **L. Luo**, J. Vairavamurthy, M. Moritz, X. Zhang, H.-Y. Zhou, S. Kim, J. N. Acosta, S. Adithan, S. T. Schroff, R. R. Ter-Oganesyan, M. Wu, K. Kleinschmidt, B. Chrisler, S. Suryadevara, and P. Rajpurkar, "Translating Radiology into Patient-Friendly Video Reports with an Integrated AI System," ***Symposium on Artificial Intelligence in Learning Health Systems (SAIL)***, 2025.

[4] S. Johri, **L. Luo**, H.-Y. Zhou, T. Brenner, S. Elamin, M. E. Geissler, T. Berzin, and P. Rajpurkar, "EndoGeneralist: Clinically Aligned Generalist Foundation Model for Endoscopy," ***Symposium on Artificial Intelligence in Learning Health Systems (SAIL)***, 2025.

[5] E. Chen, A. Saenz, O. Banerjee, H. Marklund, X. Zhang, S. Johri, H.-Y. Zhou, **L. Luo**, V. Janapa Reddi, MAIDA Consortium, and P. Rajpurkar, "Bridging the Deployment Gap: Continual Learning Improves Medical AI Performance Across 22 Global Institutions," ***Symposium on Artificial Intelligence in Learning Health Systems (SAIL)***, 2025.

[6] Z. Tang, X. Wang, A. Ran, F. Tang, Y. Cai, H. Che, D. G. Yang, **L. Luo**, Q. Liu, Y. L. Wong, H. Chen, P.-A. Heng, and C. Y. Cheung, "Using Deep Learning for Assessing Image-Quality of 3D Macular Scans from Spectral-Domain Optical Coherence Tomography," ***Investigative Ophthalmology & Visual Science***, 2022.

[7] A. Ran, X. Wang, **L. Luo**, P. Chan, R. Chang, S. S. Mannil, H. Chen, P.-A. Heng, C. C. Y. Tham, and C. Y. Cheung, "A 3D Deep Learning System for Detecting Glaucomatous Optic Neuropathy from Volumetric and En Face Optical Coherence Tomography Scans," ***Investigative Ophthalmology & Visual Science***, 2019.

Highlighted Manuscripts Under Review & Preprints

[1] M. Baharoon*, **L. Luo***, M. Moritz, A. Kumar, S. E. Kim, X. Zhang, M. Zhu, M. H. Alabbad, M. S. Alhazmi, N. P. Mistry, K. R. Kleinschmidt, B. Chrisler, S. Suryadevara, S. S. D. Jaliparthi, N. M. Prudlo, M. D. Marino, J. Palacio, R. Akula, H.-Y. Zhou, I. E. Hamamci, S. J. Adams, H. R. AlOmaish, and P. Rajpurkar, "ReXGroundingCT: A 3D Chest CT Dataset for Segmentation of Findings from Free-Text Reports," *Under Review at* ***NEJM AI***

[2] W. Lei*, H. Chen*, Z. Zhang*, **L. Luo***, Q. Xiao, Y. Gu, P. Gao, Y. Jiang, C. Wang, G. Wu, T. Xu, Y. Zhang, X. Zhang, P. Rajpurkar, S. Zhang, and Z. Wang, "A Data-Efficient Pan-Tumor Foundation Model for Oncology CT Interpretation," ***Arxiv Preprint***, 2025.

Selected Co-authored Works

[3] J. Ma, Y. Xu, F. Zhou, Y. Wang, C. Jin, Z. Guo, J. Wu, O. K. Tang, H. Zhou, X. Wang, **L. Luo**, Z. Zhang, D. Cai, Z. Gao, W. Wang, Y. Liu, J. He, J. Cui, Z. Li, J. Zhang, F. Gao, X. Zhang, L. Liang, R. C. K. Chan, Z. Wang, and H. Chen, "PathBench: A Comprehensive Comparison Benchmark for Pathology Foundation Models Towards Precision Oncology," *under review at* ***Nature***.

[4] H. Jiang, C. Jin, H. Lin, Y. Zhou, X. Wang, J. Ma, L. Ding, J. Hou, R. Liu, Z. Chai, **L. Luo**, H. Shi, Y. Qian, Q. Wang, C. Li, A. Han, R. C. K. Chan, and H. Chen, "Generalizable Cervical Cancer Screening via Large-Scale Pretraining and Test-Time Adaptation," *Under Second Round of Review at* ***Nature Communications***.

[5] L. Wu, Y. Nie, S. He, J. Zhuang, **L. Luo**, N. Mahboobani, V. Vardhanabhuti, R. C. K. Chan, Y. Peng, P. Rajpurkar, and H. Chen, "UniBiomed: A Universal Foundation Model for Grounded Biomedical Image Interpretation," *Under Second Round of Review at* ***Nature Communications***.

[6] C. Jin, F. Zhou, Y. Yu, J. Ma, Y. Wang, Y. Xu, H. Zhou, H. Jiang, **L. Luo**, L. Mao, Z. He, X. Zhang, J. Zhang, R. Chan, H. Yao, and H. Chen, "Genome-Anchored Foundation Model Embeddings Improve Molecular Prediction from Histology Images," *Under Second Round of Review at **Nature Communications***.

[7] H. Zhou, F. Zhou, C. Zhao, Y. Xu, **L. Luo**, and H. Chen, "Multimodal Data Integration for Precision Oncology: Challenges and Future Directions," *Under Second Round of Review at **Proceedings of the IEEE***

[8] C. Jin, Z. Guo, Y. Lin, **L. Luo**, and H. Chen, "Label-Efficient Deep Learning in Medical Image Analysis: Challenges and Future Directions," *Under Second Round of Review at **Medical Image Analysis***,

CLINICAL TRANSLATION & OPEN SCIENCE

Clinical Trial

- **ReXplain: AI-Generated Patient-Friendly Radiology Video Reports**
  ClinicalTrials.gov (NCT07159438)
  Data Collection Portal: portal.dbmi.hms.harvard.edu/projects/rexplain

Datasets & Benchmarks

- **ReXGroundingCT** — 3D chest CT dataset with 3,100+ scans for grounding radiological findings from free-text reports
  Hugging Face Dataset: huggingface.co/datasets/rajpurkarlab/ReXGroundingCT
  Challenge Leaderboard: rexrank.ai/ReXGroundingCT

Selected Open-Source Code

- **MOME** — Large multimodal model for non-invasive breast cancer management from MpMRI (*Nature Communications*, 2025)
  github.com/LLYXC/MOME
- **Ada-ABC** — Adaptive agreement learning for medical image debiasing (*Medical Image Analysis*, 2025)
  github.com/LLYXC/Ada-ABC

Additional repositories: github.com/LLYXC

GRANTS & FUNDING

In-Kind Contributions

- **Clinical LLM Benchmarking and Development Platform** $100,000
  Nebius — Harvard Medical School, Rajpurkar Lab 2026
  Role: Led grant writing
- **Multimodal Generative AI for Grounded Radiology Report Generation** $24,000
  NVIDIA — Harvard Medical School, Rajpurkar Lab 2025
  Role: Led grant writing

Research Grants

- **Artificial Intelligence Assisted Breast Cancer Screening, Diagnosis and Efficacy Prediction of Neoadjuvant Chemotherapy from Multimodal Data** $658,654
  Innovation and Technology Commission — HKUST, Prof. Hao Chen's Lab 2023-2025
  Role: Core member of grant application
- **AIPS: Artificial Intelligence-Enhanced Pneumoconiosis Screening and Staging from Chest Radiographs** $282,792
  Pneumoconiosis Compensation Fund Board — HKUST, Prof. Hao Chen's Lab 2023-2025
  Role: Core member of grant application
- **Research and Development of an AI-Enhanced System for COVID-19 Screening, Triaging, Quantitative Diagnosis and Longitudinal Monitoring from Multi-modality Data** $604,147
  Innovation and Technology Commission — HKUST, Prof. Hao Chen's Lab 2022-2024
  Role: Core member of grant application

TEACHING & MENTORSHIP

Harvard University 2024–present

- **Research Mentor - Harvard/Stanford/MIT Medical AI Bootcamp**: Co-leading training program teaching medical AI research methodology to undergraduate and post-graduate researchers.
  Direct supervision: Mohammed Baharoon, Minjia Wang, Matthew Kim, Kyle Luo, Gaurav Luthria

- **Research Mentor - MIT Research Science Institute (RSI)**: Supervised Anshul Bhatt (high school student, Summer 2025) on a technically demanding voice-instructed operating system agent project.

Hong Kong University of Science and Technology 2022–2024

- **Research Mentor - PhD Students**: Yequan Bie, Shu Yang, Zhixuan Chen, Zhiyuan Cai, Jiaxin Zhuang, Wenqiang Li, Hongyi Wang, Cheng Jin
- **Research Mentor - MPhil/MSc Students**: Zhizhong Chai, Yifeng Wang, Minghao Wang

The Chinese University of Hong Kong

- **Teaching Assistant - CSCI 1540: Fundamental Computing with C++** Spring 2020
  Introductory programming course covering fundamental constructs, algorithms, and problem-solving.
  Responsibilities: Led tutorial sessions, graded assignments, held office hours for 50+ students.
- **Teaching Assistant - CSCI 1510: Computer Principles and C Programming** Spring 2019
  Foundational course on computer concepts and C programming principles.
  Responsibilities: Conducted tutorial sessions, assisted with lab exercises, provided student mentoring.
- **Teaching Assistant - ENGG 2020: Digital Logic and Systems** Fall 2018, Fall 2019
  Core engineering course covering boolean algebra, logic gates, and digital circuit design.
  Responsibilities: Led tutorial sessions, supervised lab practicals, graded exams and assignments.

HONORS & AWARDS

Best Paper, AIMedHealth, AAAI Bridge Program 2025

Featured Article, IEEE Reviews in Biomedical Engineering 2025

Featured Article, IEEE Transactions on Medical Imaging 2025

Elected Member, Sigma Xi, The Scientific Research Honor Society 2025

Second Place in Poster Presentation, Science Day, Department of Biomedical Informatics, Harvard University 2024

INVITED TALKS

Multimodal Medical AI Development and Deployment 2026
Department of Biomedical Informatics, Columbia University, invited by Prof. Noémie Elhadad
Mahmood Lab, Harvard Medical School, invited by Caiwei Tian.

ReXplain: Translating Radiology into Patient-friendly Video Reports 2025
Precision Radiology Congress: Asia, invited by the organization committee

Medical AI via Foundation Models 2025
The University of British Columbia, invited by Prof. Xiaoxiao Li

Understanding and Learning from Imperfect Medical Data 2024
Vision And Learning SEminar (VALSE), invited by the VALSE organization committee

Understanding and Learning from Imperfect Medical Data 2024
Beijing Normal University & Hong Kong Baptist University United International College, invited by Prof. Weifeng Su

Trustworthy Artificial Intelligence for Healthcare 2023
Hong Kong University of Science and Technology (Guangzhou), invited by the Advanced Materials Thrust

PROFESSIONAL SERVICE

Editorial Roles

- ◇ **Guest Editor**, Special Issue on "Trustworthy Artificial Intelligence for Medical Imaging,"
  Computerized Medical Imaging and Graphics
- ◇ **Guest Editor**, Special Issue on "Trustworthy Machine Learning for Health Informatics,"
  IEEE Journal of Biomedical and Health Informatics
- ◇ **Proceedings Editor**, "Trustworthy Machine Learning for Healthcare,"
  TML4H 2023 Workshop Proceedings

Area Chair / Program Committee

- ◇ MICCAI 2025, 2026
- ◇ AIMedHealth, AAAI Bridge Program 2026
- ◇ Deep-Brea^{3}th Workshop, MICCAI 2025
- ◇ TAI4H Workshop, IJCAI 2024
- ◇ TML4H Workshop, ICLR 2023
- ◇ CVAMD Workshop, ICCV 2023
- ◇ 4th International Workshop on MMMI

Journal Reviewer

- Nature, Nature Cancer, NEJM AI, NPJ Digital Medicine
- IEEE Transactions on Medical Imaging, Medical Image Analysis
- IEEE Transactions on Image Processing, Journal of Biomedical and Health Informatics

Conference Reviewer

- ICCV 2025, CVPR 2024–2025, AAAI 2022–2025, MICCAI 2021–2024