LEQUAN YU

Assistant Professor, Department of Statistics and Actuarial Science
Rm 226, Run Run Shaw Building, The University of Hong Kong
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PROFESSIONAL EXPERIENCE

The University of Hong Kong, HKSAR, China
Assistant Professor, Department of Statistics and Actuarial Science — Apr. 2021 – Present
Co-coordinator, Bachelor of Arts and Sciences in Applied Artificial Intelligence — Mar. 2022 – Present

Stanford University, CA, USA
Postdoctoral Fellow, Medical Physics, School of Medicine — Nov. 2019 – Mar. 2021
Supervisor: Prof. Lei Xing (Jacob Haimson & Sarah S. Donaldson Professor)

NVIDIA, MD, USA
Applied Research Intern — July 2018 – Oct. 2018

Siemens Healthineers, NJ, USA
Research Intern — Mar. 2017 – July 2017

EDUCATION

The Chinese University of Hong Kong, HKSAR, China — Aug. 2015 – July 2019
Ph.D., Department of Computer Science and Engineering
Supervisor: Prof. Pheng-Ann Heng & Prof. Chi-Wing Fu
CUHK Young Scholars Thesis Award

Zhejiang University, Hangzhou, China — Sept. 2011 – June 2015
B.Eng., Department of Computer Science and Technology
Supervisor: Prof. Deng Cai
Rank: 1/185

RESEARCH INTERESTS

Medical Image Analysis, Deep Learning, Multimodal Learning, Biomedical Data Science, AI in Healthcare

My research lies at the intersection of artificial intelligence and healthcare. We are dedicated to designing advanced computational and machine learning algorithms for biomedical data analysis, primarily focusing on medical images, to improve medical decision-making. Specifically, we focus on 1) developing multimodal learning algorithms (e.g., multimodal foundation model) to integrate multi-scale biomedical data for disease prevention, diagnosis, prognosis, and treatment design; 2) building real-world learning systems to learn generalizable, trustworthy, and fair representations from imperfect medical data; and 3) developing causality-based learning algorithms to improve their interpretability for healthcare problems.

FUNDED PROJECTS

External Projects

1. HK ITF Innovation and Technology Support Programme (**ITSP**): *Research and Development of an AI-enhanced System for Preoperative Meningioma Grading and Brain Invasion Prediction from Multi-modality Data*
   ITS/273/22 (Apr. 2024 - Sept. 2025)
   Role: **Single PI**
   Amount: HK$ 1,323,017.50
2. HK ITF Innovation and Technology Support Programme (**ITSP**): *Research and Development of an AI-enhanced System for Whole Slide Histopathology Image: Quantitative Assessment, Assisted Diagnosis and Prognostic Evaluation*
   ITS/274/22 (Jan. 2024 - June 2025)
   Role: **Single PI**
   Amount: HK$ 1,398,917.50
3. HK RGC Early Career Scheme (**ECS**): *Towards Precise Imaging-based Gastric Cancer Prognosis using Multi-modal Heterogeneous Relationship Learning*
   27206123 (Jan. 2024 - Dec. 2026)
   Role: **Single PI**
   Amount: HK$ 1,094,112

4. NSFC Young Scientists Fund: *Domain-incremental Learning for Generalizable Cardiac Image Segmentation*
   62201483 (Jan. 2023 - Dec. 2025)
   Role: **single PI**
   Amount: HK$ 328,000

5. HK RGC Theme-based Research Scheme (**TRS**): *Institute of Medical Intelligence and XR*
   T45-401/22-N (Jan. 2023 - Dec. 2027)
   Role: **Co-PI**
   Amount: HK$ 50,607,000 (My share: HK$ 659,000)

Internal Projects

1. HKU Seed Fund for Basic Research: *Domain-incremental learning for generalizable cardiac image segmentation*
   6220011325 (June 2022 - May 2024)
   Role: **single PI**
   Amount: HK$ 61,500

2. HKU Seed Fund for Basic Research for New Staff: *Towards Reliable and Generalizable AI-powered Systems for Safety-critical Medical Image Analysis and Surgical Robotics Perception*
   202009185079 (June 2021 - Dec. 2023)
   Role: **single PI**
   Amount: HK$ 150,000

SELECTED PUBLICATIONS

Google Scholar Citations: 12851, h-index: 48, i10-index: 74
Link to Google Scholar: `https://scholar.google.com/citations?hl=en&user=llXf3wUAAAAJ`

Refereed Journal Papers * indicates equal contribution † indicates corresponding author

[J52] A Dual Enrichment Synergistic Strategy to Handle Data Heterogeneity for Domain Incremental Cardiac Segmentation
Kang Li, Yu Zhu, **Lequan Yu**, and Pheng-Ann Heng.
IEEE Transactions on Medical Imaging (**TMI**), 2024.

[J51] Hybrid Masked Image Modeling for 3D Medical Image Segmentation
Zhaohu Xing, Lei Zhu, **Lequan Yu**, Zhiheng Xing, and Liang Wan.
IEEE Journal of Biomedical and Health Informatics (**JBHI**), 2024.

[J50] Self-Mining the Confident Prototypes for Source-Free Unsupervised Domain Adaptation in Image Segmentation
Yuntong Tian, Jiaxi Li, Huazhu Fu, Lei Zhu, **Lequan Yu**, and Liang Wan.
IEEE Transactions on Multimedia (**TMM**), 2024.

[J49] RECIST-Induced Reliable Learning: Geometry-Driven Label Propagation for Universal Lesion Segmentation
Lianyu Zhou*, **Lequan Yu***, and Liansheng Wang.
IEEE Transactions on Medical Imaging (**TMI**), 43(1), pp. 149 - 161, 2024.

[J48] Adaptive Region-Specific Loss for Improved Medical Image Segmentation
Yizheng Chen, **Lequan Yu**, Jen-Yeu Wang, Neil Panjwani, Jean-Pierre Obeid, Wu Liu, Lianli Liu et al.
IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), 45(11), pp. 13408-13421, 2023.

[J47] Shared-specific Feature Learning with Bottleneck Fusion Transformer for Multi-modal Whole Slide Image Analysis
Zhihua Wang*, **Lequan Yu***, Xin Ding, Xuehong Liao, and Liansheng Wang.
IEEE Transactions on Medical Imaging (**TMI**), 42(11), pp. 3374-3383, 2023.

[J46] Hybrid Graph Convolutional Network with Online Masked Autoencoder for Robust Multimodal Cancer Survival Prediction
Wentai Hou, Chengxuan Lin, **Lequan Yu**, Jing Qin, Rongshan Yu, and Liansheng Wang.
IEEE Transactions on Medical Imaging (**TMI**), 42(8), pp. 2462-2473, 2023.

[J45] MuRCL: Multi-instance Reinforcement Contrastive Learning for Whole Slide Image Classification
Zhonghang Zhu*, **Lequan Yu***, Wei Wu, Rongshan Yu, Defu Zhang, and Liansheng Wang.
IEEE Transactions on Medical Imaging (**TMI**), 42(5), pp. 1337-1348, 2023. **(ESI Highly Cited Paper)**

[J44] Data Discernment for Affordable Training in Medical Image Segmentation
Youyi Song, **Lequan Yu**, Baiying Lei, Kup-Sze Choi, and Jing Qin.
IEEE Transactions on Medical Imaging (**TMI**), 42(5), pp. 1431-1445, 2023.

[J43] Domain-incremental Cardiac Image Segmentation with Style-oriented Replay and Domain-sensitive Feature Whitening
Kang Li, **Lequan Yu**, Pheng-Ann Heng.
IEEE Transactions on Medical Imaging (**TMI**), 42(3), pp. 570-581, 2023.

[J42] Influence of Data Distribution on Federated Learning Performance in Tumor Segmentation
Guibo Luo, Tianyu Liu, Jinghui Lu, Xin Chen, **Lequan Yu**, Jian Wu, Danny Z. Chen, and Wenli Cai.
Radiology: Artificial Intelligence, 5(3), p.e220082, 2023

[J41] nnFormer: Volumetric Medical Image Segmentation via a 3D Transformer
Hong-Yu Zhou, Jiansen Guo, Yinghao Zhang, Xiaoguang Han, **Lequan Yu**, Liansheng Wang, and Yizhou Yu.
IEEE Transactions on Image Processing (**TIP**), 32, pp. 4036-4045, 2023.

[J40] DER-GAN: Dual-Energy Recovery GAN for Conebeam CT
Jiajun Xiang, Aihua Mao, Jiayi Xie, Hongbin Han, Xianghong Wang, Peng Jin, Jichen Du, Mingchao Ding, **Lequan Yu**, and Tianye Niu.
IEEE Transactions on Computational Imaging (**TCI**), 10, pp. 28-42, 2023.

[J39] Noise-disentangled single-pixel imaging under photon-limited conditions
Mengyu Jia, Zhaoqi Wei, **Lequan Yu**, Zhiyong Yuan, and Feng Gao.
IEEE Transactions on Computational Imaging (**TCI**), 9, pp. 594-606, 2023.

[J38] ARR-GCN: Anatomy-Relation Reasoning Graph Convolutional Network for Automatic Fine-grained Segmentation of Organ's Surgical Anatomy
Yinli Tian, Wenjian Qin, Fei Xue, Ricardo Lambo, Meiyan Yue, Songhui Diao, **Lequan Yu**, Yaoqin Xie, Hailin Cao, and Shuo Li.
IEEE Journal of Biomedical and Health Informatics (**JBHI**), 27(7), pp. 3258-3269, 2023

[J37] Leveraging Data-driven Self-consistency for High-fidelity Gene Expression Recovery
Md Tauhidul Islam, Jen-Yeu Wang, Hongyi Ren, Xiaomeng Li, Masoud Badiei Khuzani, Shengtian Sang, **Lequan Yu**, Liyue Shen, Wei Zhao, and Lei Xing.
Nature Communications, 13(1), p.7142, 2022.

[J36] MCIBI++: Soft Mining Contextual Information Beyond Image for Semantic Segmentation
Zhenchao Jin, Dongdong Yu, Zehuan Yuan, **Lequan Yu**.
IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), 45(5), pp. 5988-6005, 2022.

[J35] Lymph Node Metastasis Prediction from Whole Slide Images with Transformer-guided Multi-instance Learning and Knowledge Transfer
Zhihua Wang*, **Lequan Yu***, Xin Ding, Xuehong Liao, Liansheng Wang.
IEEE Transactions on Medical Imaging (**TMI**), 41(10), pp. 2777-2787, 2022.

[J34] Novel-view X-ray Projection Synthesis through Geometry-integrated Deep Learning
Liyue Shen, **Lequan Yu**, Wei Zhao, John Pauly, Lei Xing.
Medical Image Analysis (**MedIA**), 77, pp. 102372, 2022.

[J33] Towards Reliable Cardiac Image Segmentation: Assessing Image-level and Pixel-level Segmentation Quality via Self-reflective References
Kang Li, **Lequan Yu**, Pheng-Ann Heng.
Medical Image Analysis (**MedIA**), 78, pp. 102426, 2022.

[J32] Robust Medical Image Classification from Noisy Labeled Data with Global and Local Representation Guided Co-training
Cheng Xue, **Lequan Yu**†, Pengfei Chen, Qi Dou, Pheng-Ann Heng.
IEEE Transactions on Medical Imaging (**TMI**), 41(6), pp. 1371-1382, 2022.

[J31] Single Pixel Imaging via Unsupervised Deep Compressive Sensing with Collaborative Sparsity in Discretized Feature Space
Mengyu Jia, **Lequan Yu**, Wenxing Bai, Pengfei Zhang, Limin Zhang, Wei Wang, and Feng Gao.
Journal of Biophotonics, 15(7), p.e202200045, 2022.

[J30] All-around Real Label Supervision: Cyclic Prototype Consistency Learning for Semi-supervised Medical Image Segmentation
Zhe Xu, Yixin Wang, Donghuan Lu, **Lequan Yu**, Jiangpeng Yan, Jie Luo, Kai Ma, Yefeng Zheng, and Raymond Kai-yu Tong.
IEEE Journal of Biomedical and Health Informatics (**JBHI**), 26(7), pp.3174-3184, 2022.

[J29] Dual-Teacher++: Exploiting Intra-domain and Inter-domain Knowledge with Reliable Transfer for Cardiac Segmentation
Kang Li, Shujun Wang, **Lequan Yu**†, Pheng-Ann Heng.
IEEE Transactions on Medical Imaging (**TMI**), 40(10), pp. 2771-2782, 2021.

[J28] Deep Neural Network with Consistency Regularization of Multi-Output Channels for Improved Tumor Detection and Delineation
Hyunseok Seo, **Lequan Yu**, Hongyi Ren, Xiaomeng Li, Liyue Shen, Lei Xing.
IEEE Transactions on Medical Imaging (**TMI**), 40(12), pp. 3369-3378, 2021.

[J27] Rotation-oriented Collaborative Self-supervised Learning for Retinal Disease Diagnosis
Xiaomeng Li, Xiaowei Hu, Xiaojuan Qi, **Lequan Yu**, Wei Zhao, Pheng-Ann Heng, Lei Xing.
IEEE Transactions on Medical Imaging (**TMI**), 40(9), pp. 2284-2294, 2021.

[J26] MR to Ultrasound Image Registration with Segmentation-based Learning for HDR Prostate Brachytherapy
Yizheng Chen, Lei Xing, **Lequan Yu**, Wu Liu, Benjamin P Fahimian, Thomas Niedermayr, Hilary Bagshaw, Mark K Buyyounouski, Bin Han.
Medical Physics, 48(6), pp. 3074-3083, 2021.

[J25] Modularized Data-Driven Reconstruction Framework for Non-ideal Focal Spot Effect Elimination in Computed Tomography
Zhicheng Zhang, **Lequan Yu**, Wei Zhao, Lei Xing.
Medical Physics, 48(5), pp. 2245-2257, 2021.

[J24] Deep Sinogram Completion with Image Prior for Metal Artifact Reduction in CT Images
Lequan Yu, Zhicheng Zhang, Xiaomeng Li, Lei Xing.
IEEE Transactions on Medical Imaging (**TMI**), 40(1), pp. 228-238, 2021.

[J23] Automatic intraprostatic lesion segmentation in multiparametric magnetic resonance images with proposed multiple branch UNet
Yizheng Chen, Lei Xing, **Lequan Yu**, Hilary P. Bagshaw, Mark K. Buyyounouski, Bin Han.
Medical Physics, 47(12), pp. 6421-6429, 2020.

[J22] DoFE: Domain-oriented Feature Embedding for Generalizable Fundus Image Segmentation on Unseen Datasets
Shujun Wang, **Lequan Yu**†, Xin Yang, Kang Li, Chi-Wing Fu, Pheng-Ann Heng.
IEEE Transactions on Medical Imaging (**TMI**), 39(12), pp. 4237-4248, 2020.

[J21] Deep Mining External Imperfect Data for Chest X-ray Diseases Screening
Luyang Luo*, **Lequan Yu***, Hao Chen, Quande Liu, Xi Wang, Jiaqi Xu, Pheng-Ann Heng.
IEEE Transactions on Medical Imaging (**TMI**), 39(11), pp. 3583-3594, 2020.

[J20] Semi-supervised Medical Image Classification with Relation-driven Self-ensembling Model
Quande Liu, **Lequan Yu**†, Luyang Luo, Qi Dou, Pheng-Ann Heng.
IEEE Transactions on Medical Imaging (**TMI**), 39(11), pp. 3429-3440, 2020.

[J19] Transformation-consistent Self-ensembling Model for Semi-supervised Medical Image Segmentation
Xiaomeng Li, **Lequan Yu**, Hao Chen, Chi-Wing Fu, Lei Xing, Pheng-Ann Heng.
IEEE Transaction on Neural Network and Learning Systems (**TNNLS**), 32(2), pp. 523-534, 2020. **(ESI Highly Cited Paper)**

[J18] Unsupervised Detection of Distinctive Regions on 3D Shapes
Xianzhi Li, **Lequan Yu**, Chi-Wing Fu, Daniel Cohen-Or, Pheng-Ann Heng.
ACM Transactions on Graphics (**TOG**), 39(5), pp. 1-14, 2020.

[J17] Revisiting Metric Learning for Few-Shot Image Classification
Xiaomeng Li, **Lequan Yu**, Chi-Wing Fu, Meng Fang, Pheng-Ann Heng.
Neurocomputing, 406, pp. 49-58, 2020.

[J16] MS-Net: Multi-Site Network for Improving Prostate Segmentation with Heterogeneous MRI Data
Quande Liu, Qi Dou, **Lequan Yu**, Pheng-Ann Heng.
IEEE Transactions on Medical Imaging (**TMI**), 39(9), pp. 2713-2724, 2020.

[J15] Self-supervised Feature Learning via Exploiting Multi-modal Data for Retinal Disease Diagnosis
Xiaomeng Li, Mengyu Jia, Tauhidul M. Islam, **Lequan Yu**, Lei Xing.
IEEE Transactions on Medical Imaging (**TMI**), 39(12), pp. 4023-4033, 2020.

[J14] Uncertainty-aware Multi-view Co-training for Semi-supervised Medical Image Segmentation and Domain Adaptation
Yingda Xia, Dong Yang, Zhiding Yu, Fengze Liu, Jinzheng Cai, **Lequan Yu**, Zhuotun Zhu, Daguang Xu,

Alan Yuille, Holger Roth.
Medical Image Analysis (**MedIA**), 65, p. 101766, 2020.

[J13] Patch-based Output Space Adversarial Learning for Joint Optic Disc and Cup Segmentation
Shujun Wang, **Lequan Yu**, Xin Yang, Chi-Wing Fu, Pheng-Ann Heng.
IEEE Transactions on Medical Imaging (**TMI**), 38(11), pp. 2485-2495, 2019.

[J12] CANet: Cross-disease Attention Network for Joint Diabetic Retinopathy and Diabetic Macular Edema Grading
Xiaomeng Li, Xiaowei Hu, **Lequan Yu**, Lei Zhu, Chi-Wing Fu, Pheng-Ann Heng.
IEEE Transactions on Medical Imaging (**TMI**), 39(5), pp. 1483-1493, 2019. **(ESI Highly Cited Paper)**

[J11] RMDL: Recalibrated Multi-instance Deep Learning for Whole Slide Gastric Image Classification
Shujun Wang, Yaxi Zhu, **Lequan Yu**, Hao Chen, Huangjing Lin, Xiangbo Wan, Xinjuan Fan, Pheng-Ann Heng. Medical Image Analysis (**MedIA**), 58, p. 101549, 2019.

[J10] Towards Automated Semantic Segmentation in Prenatal Volumetric Ultrasound
Xin Yang, **Lequan Yu**, Shengli Li, Jing Qin, Dong Ni, Pheng-Ann Heng et al.
IEEE Transactions on Medical Imaging (**TMI**), 38(1), pp. 180-193, 2018.

[J9] VoxResNet: Deep Voxelwise Residual Networks for Volumetric Brain Segmentation
Hao Chen, Qi Dou, **Lequan Yu**, Jing Qin, Pheng-Ann Heng.
NeuroImage, 170, pp. 446-455, 2018. **(ESI Highly Cited Paper)**

[J8] SV-RCNet: Workflow Recognition from Surgical Videos using Recurrent Convolutional Network
Yueming Jin, Qi Dou, Hao Chen, **Lequan Yu**, Jing Qin, Chi-Wing Fu, Pheng-Ann Heng.
IEEE Transactions on Medical Imaging (**TMI**), 37(5), pp. 1114-1126, 2018.

[J7] Automated Melanoma Recognition in Dermoscopy Images via Very Deep Residual Networks
Lequan Yu, Hao Chen, Qi Dou, Jing Qin, Pheng-Ann Heng.
IEEE Transactions on Medical Imaging (**TMI**), 36(4), pp. 994-1004, 2017. **(ESI Highly Cited Paper)**

[J6] Integrating Online and Offline 3D Deep Learning for Automated Polyp Detection in Colonoscopy Videos
Lequan Yu, Hao Chen, Qi Dou, Jing Qin, Pheng-Ann Heng.
IEEE Journal of Biomedical and Health Informatics (**JBHI**), 21(1), pp. 65-75, 2017.

[J5] 3D Deeply Supervised Network for Automated Segmentation of Volumetric Medical Images
Qi Dou, **Lequan Yu**, Hao Chen, Yueming Jin, Xin Yang, Jing Qin, Pheng-Ann Heng.
Medical Image Analysis (**MedIA**), 41, pp. 40-54, 2017. **(MedIA-MICCAI'17 Best Paper Award; ESI Highly Cited Paper)**

[J4] Comparative Validation of Polyp Detection Methods in Video Colonoscopy: Results from the MICCAI 2015 Endoscopic Vision Challenge
Jorge Bernal, Nima Tajkbaksh, Francisco Javier Sánchez, Bogdan J. Matuszewski, **Lequan Yu**, et al.
IEEE Transactions on Medical Imaging (**TMI**), 36(6), pp. 1231-1249, 2017.

[J3] DCAN: Deep Contour-aware Networks for Object Instance Segmentation from Histology Images
Hao Chen, Xiaojuan Qi, **Lequan Yu**, Qi Dou, Jing Qin, Pheng-Ann Heng.
Medical Image Analysis (**MedIA**), 36, pp. 135-146, 2017. **(ESI Highly Cited Paper)**

[J2] Multi-level Contextual 3D CNNs for False Positive Reduction in Pulmonary Nodule Detection
Qi Dou, Hao Chen, **Lequan Yu**, Jing Qin, Pheng-Ann Heng.
IEEE Transactions on Biomedical Engineering (**TBME**), 64, pp. 1558-1567, 2017. **(ESI Highly Cited Paper)**

[J1] Automatic Detection of Cerebral Microbleeds from MR Images via 3D Convolutional Neural Networks
Qi Dou, Hao Chen, **Lequan Yu**, Jing Qin, Lin Shi, Pheng-Ann Heng et al.
IEEE Transactions on Medical Imaging (**TMI**), 35(5), pp. 1182-1195, 2016. **(ESI Highly Cited Paper)**

Refereed Conference Papers

[C43] Memory-Efficient Prompt Tuning for Incremental Histopathology Classification
Yu Zhu, Kang Li, **Lequan Yu**, and Pheng-Ann Heng.
AAAI Conference on Artificial Intelligence (**AAAI**), 2024.

[C42] Boosting Multiple Instance Learning Models for Whole Slide Image Classification: A Model-agnostic Framework Based on Counterfactual Inference
Weiping Lin, Zhenfeng Zhuang, **Lequan Yu**, and Liansheng Wang.
AAAI Conference on Artificial Intelligence (**AAAI**), 2024.

[C41] Adaptive Uncertainty Estimation via High-Dimensional Testing on Latent Representations
Tsai Hor Chan, Kin Wai Lau, Jiajun Shen, Guosheng Yin, and **Lequan Yu**.
Conference on Neural Information Processing Systems (**NeurIPS**), 2023.

[C40] IDRNet: Intervention-Driven Relation Network for Semantic Segmentation
Zhenchao Jin, Xiaowei Hu, Lingting Zhu, Luchuan Song, Li Yuan, and **Lequan Yu**.
Conference on Neural Information Processing Systems (**NeurIPS**), 2023.

[C39] ConSlide: Asynchronous Hierarchical Interaction Transformer with Breakup-Reorganize Rehearsal for Continual Whole Slide Image Analysis
Yanyan Huang, Weiqin Zhao, Shujun Wang, Yu Fu, Yuming Jiang, and **Lequan Yu**.
The International Conference on Computer Vision (**ICCV**), 2023.

[C38] HIGT: Hierarchical Interaction Graph-Transformer for Whole Slide Image Analysis
Ziyu Guo, Weiqin Zhao, Shujun Wang, and **Lequan Yu**.
Medical Image Computing and Computer Assisted Intervention (**MICCAI**), 2023.

[C37] Make-A-Volume: Leveraging Latent Diffusion Models for Cross-Modality 3D Brain MRI Synthesis
Lingting Zhu, Zeyue Xue, Zhenchao Jin, Xian Liu, Jingzhen He, Ziwei Liu, and **Lequan Yu**.
Medical Image Computing and Computer Assisted Intervention (**MICCAI**), 2023.

[C36] Consistency-guided Meta-Learning for Bootstrapping Semi-Supervised Medical Image Segmentation
Qingyue Wei, **Lequan Yu**, Xianhang Li, Wei Shao, Cihang Xie, Lei Xing, and Yuyin Zhou.
Medical Image Computing and Computer Assisted Intervention (**MICCAI**), 2023.

[C35] Cross-View Deformable Transformer for Non-displaced Hip Fracture Classification from Frontal-Lateral X-Ray Pair
Zhonghang Zhu, Qichang Chen, **Lequan Yu**, Lianxin Wang, Defu Zhang, Baptiste Magnier, and Liansheng Wang
Medical Image Computing and Computer Assisted Intervention (**MICCAI**), 2023.

[C34] Multi-scope Analysis Driven Hierarchical Graph Transformer for Whole Slide Image Based Cancer Survival Prediction
Wentai Hou, Yan He, Bingjian Yao, **Lequan Yu**, Rongshan Yu, Feng Gao, and Liansheng Wang
Medical Image Computing and Computer Assisted Intervention (**MICCAI**), 2023.

[C33] Histopathology Whole Slide Image Analysis With Heterogeneous Graph Representation Learning
Tsai Hor Chan, Fernando Julio Cendra, Lan Ma, Guosheng Yin, and **Lequan Yu**.
IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), pp. 15661-15670, 2023.

[C32] Taming Diffusion Models for Audio-Driven Co-Speech Gesture Generation
Lingting Zhu, Xian Liu, Xuanyu Liu, Rui Qian, Ziwei Liu, and **Lequan Yu**.
IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), pp. 10544-10553. 2023..

[C31] MagicNet: Semi-Supervised Multi-Organ Segmentation via Magic-Cube Partition and Recovery
Duowen Chen, Yunhao Bai, Wei Shen, Qingli Li, **Lequan Yu**, and Yan Wang.
IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), pp. 23869-23878. 2023.

[C30] MulGT: Multi-task Graph-Transformer with Task-aware Knowledge Injection and Domain Knowledge-driven Pooling for Whole Slide Image Analysis
Weiqin Zhao, Shujun Wang, Maximus Yeung, Tianye Niu, and **Lequan Yu**.
AAAI Conference on Artificial Intelligence (**AAAI**), 2023.

[C29] Multi-Granularity Cross-modal Alignment for Generalized Medical Visual Representation Learning
Fuying Wang, Yuyin Zhou, Shujun Wang, Varut Vardhanabhuti, **Lequan Yu**.
Conference on Neural Information Processing Systems (**NeurIPS**), 2022.

[C28] You Should Look at All Objects
Zhenchao Jin, Dongdong Yu, Luchuan Song, Zehuan Yuan, **Lequan Yu**.
European Conference on Computer Vision (**ECCV**), 2022.

[C27] CD^2-pFed: Cyclic Distillation-guided Channel Decoupling for Model Personalization in Federated Learning
Yiqing Shen, Yuyin Zhou, **Lequan Yu**.
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2022.

[C26] Reinforcement Learning Driven Intra-modal and Inter-modal Representation Learning for 3D Medical Image Classification
Zhonghang Zhu, Liansheng Wang, Baptiste Magnier, Lei Zhu, Defu Zhang, **Lequan Yu**.
Medical Image Computing and Computer Assisted Intervention (**MICCAI**), 2022.

[C25] Spatial-hierarchical Graph Neural Network with Dynamic Structure Learning for Histological Image Classification
Wentai Hou, Helong Huang, Qiong Peng, Rongshan Yu, **Lequan Yu**, Liansheng Wang.
Medical Image Computing and Computer Assisted Intervention (**MICCAI**), 2022.

[C24] NestedFormer: Nested Modality-Aware Transformer for Brain Tumor Segmentation
Zhaohu Xing, **Lequan Yu**, Liang Wan, Tong Han, Lei Zhu.
Medical Image Computing and Computer Assisted Intervention (**MICCAI**), 2022.

[C23] Joint Prediction of Meningioma Grade and Brain Invasion via Task-Aware Contrastive Learning
Tianling Liu, Wennan Liu, **Lequan Yu**, Liang Wan, Tong Han, Lei Zhu.
Medical Image Computing and Computer Assisted Intervention (**MICCAI**), 2022.

[C22] H^2-MIL: Exploring Hierarchical Representation with Heterogeneous Multiple Instance Learning for Whole Slide Image Analysis
Wentai Hou*, **Lequan Yu***, Chengxuan Lin, Helong Huang, Rongshan Yu, Jing Qin, Liansheng Wang.
AAAI Conference on Artificial Intelligence (**AAAI**), Accepted for publication, 2022.

[C21] TransCT: Dual-path Transformer for Low Dose Computed Tomography
Zhicheng Zhang, **Lequan Yu**, Xiaokun Liang, Wei Zhao, Lei Xing.
Medical Image Computing and Computer Assisted Intervention (**MICCAI**), 2021.

[C20] Selective Learning from External Data for CT Image Segmentation
Youyi Song, **Lequan Yu**, Baiying Lei, Kup-Sze Choi, Jing Qin.
Medical Image Computing and Computer Assisted Intervention (**MICCAI**), 2021.

[C19] Learning from Extrinsic and Intrinsic Supervisions for Domain Generalization
Shujun Wang, **Lequan Yu**†, Caizi Li, Chi-Wing Fu, Pheng-Ann Heng.
European Conference on Computer Vision (**ECCV**), pp. 159-176, 2020.

[C18] Towards Cross-modality Medical Image Segmentation with Online Mutual Knowledge Distillation
Kang Li, **Lequan Yu**†, Shujun Wang, Pheng-Ann Heng.
AAAI Conference on Artificial Intelligence (**AAAI**), pp. 775-783, 2020.

[C17] Robust Medical Image Segmentation from Non-expert Annotation with Tri-network
Tianwei Zhang*, **Lequan Yu***, Na Hu, Su Lv, Shi Gu.
Medical Image Computing and Computer Assisted Intervention (**MICCAI**), pp. 249-258, 2020.

[C16] Dual-Teacher: Integrating Intra-domain and Inter-domain Teachers for Annotation-efficient Cardiac Segmentation
Kang Li, Shujun Wang, **Lequan Yu**†, Pheng-Ann Heng.
Medical Image Computing and Computer Assisted Intervention (**MICCAI**), pp. 418-427, 2020.

[C15] Difficulty-aware Meta-Learning for Rare Disease Diagnosis
Xiaomeng Li, **Lequan Yu**, Yueming Jin, Chi-Wing Fu, Lei Xing, Pheng-Ann Heng.
Medical Image Computing and Computer Assisted Intervention (**MICCAI**), pp. 357-366, 2020.

[C14] Local and Global Structure-aware Entropy Regularized Mean Teacher Model for 3D Left Atrium segmentation
Wenlong Hang, Wei Feng, Shuang Liang, **Lequan Yu**, Qiong Wang, Kup-Sze Choi, Jing Qin.
Medical Image Computing and Computer Assisted Intervention (**MICCAI**), pp. 562-571, 2020.

[C13] 3d Semi-supervised Learning with Uncertainty-aware Multi-view Co-training
Yingda Xia, Fengze Liu, Dong Yang, Jinzheng Cai, **Lequan Yu**, et al.
IEEE/CVF Winter Conference on Applications of Computer Vision (**WACV**), pp. 3646-3655, 2020.

[C12] Uncertainty-aware Self-ensembling Model for Semi-supervised 3D Left Atrium Segmentation
Lequan Yu, Shujun Wang, Xiaomeng Li, Chi-Wing Fu, Pheng-Ann Heng.
Medical Image Computing and Computer Assisted Intervention (**MICCAI**), pp. 605-613, 2019.

[C11] Boundary and Entropy-driven Adversarial Learning for Fundus Image Segmentation
Shujun Wang*, **Lequan Yu***, Kang Li, Xin Yang, Chi-Wing Fu, Pheng-Ann Heng.
Medical Image Computing and Computer Assisted Intervention(**MICCAI**), pp. 102-110, 2019.

[C10] Agent with Warm Start and Active Termination for Plane Localization in 3D Ultrasound
Haoran Dou, Xin Yang, Jikuan Qian, Hao Qin, Xu Wang, **Lequan Yu**, Pheng-Ann Heng, et al.
Medical Image Computing and Computer Assisted Intervention(**MICCAI**), pp. 290-298, 2019. **(Oral)**

[C9] PU-Net: Point Cloud Upsampling Network
Lequan Yu, Xianzhi Li, Chi-Wing Fu, Daniel Cohen-Or, Pheng-Ann Heng.
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), pp. 2790-2799, 2018.

[C8] EC-Net: an Edge-aware Point set Consolidation Network
Lequan Yu, Xianzhi Li, Chi-Wing Fu, Daniel Cohen-Or, Pheng-Ann Heng.
European Conference on Computer Vision (**ECCV**), pp. 386-402, 2018.

[C7] Semi-supervised Skin Lesion Segmentation via Transformation Consistent Self-ensembling Model
Xiaomeng Li, **Lequan Yu**, Hao Chen, Chi-Wing Fu, Pheng-Ann Heng.
The British Machine Vision Conference (**BMVC**), 2018.

[C6] Volumetric ConvNets with Mixed Residual Connections for Automated Prostate Segmentation from 3D MR Images
Lequan Yu, Xin Yang, Hao Chen, Jing Qin, Pheng-Ann Heng.
AAAI Conference on Artificial Intelligence (**AAAI**), pp. 66-72, 2017. **(Oral)**

[C5] Automatic 3D Cardiovascular MR Segmentation with Densely-Connected Volumetric ConvNets
Lequan Yu, Jie-Zhi Cheng, Qi Dou, Xin Yang, Hao Chen, Jing Qin, Pheng-Ann Heng.
Medical Image Computing and Computer Assisted Intervention (**MICCAI**), pp. 287-295, 2017.

[C4] Fine-grained Recurrent Neural Networks for Automatic Prostate Segmentation in Ultrasound Images
Xin Yang, **Lequan Yu**, Lingyun Wu, Yi Wang, Dong Ni, Jing Qin, Pheng-Ann Heng.
AAAI Conference on Artificial Intelligence (**AAAI**), pp. 1633-1639, 2017. **(Oral)**

[C3] Towards Automatic Semantic Segmentation in Volumetric Ultrasound
Xin Yang, **Lequan Yu**, Shengli Li, Xu Wang, Na Wang, Jing Qin, Dong Ni, Pheng-Ann Heng.
Medical Image Computing and Computer Assisted Intervention (**MICCAI**), pp. 711-719, 2017.

[C2] DCAN: Deep Contour-Aware Networks for Accurate Gland Segmentation
Hao Chen, Xiaojuan Qi, **Lequan Yu**, Pheng-Ann Heng.
IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), pp. 2487-2496, 2016.

[C1] 3D Deeply Supervised Network for Automatic Liver Segmentation from CT Volumes
Qi Dou, Hao Chen, Yueming Jin, **Lequan Yu**, Jing Qin, Pheng-Ann Heng.
Medical Image Computing and Computer Assisted Intervention (**MICCAI**), pp. 149-157, 2016.

Refereed Workshop Papers

[W6] MuST: Multimodal Spatiotemporal Graph-Transformer for Hospital Readmission Prediction
Yan Miao and **Lequan Yu**.
International Workshop on Multiscale Multimodal Medical Imaging of MICCAI (**MMMI**), 2023.

[W5] Cheap Lunch for Medical Image Segmentation by Fine-tuning SAM on Few Exemplars
Weijia Feng, Lingting Zhu, and **Lequan Yu**.
The Brain Lesion (**BrainLes**) workshop of MICCAI, 2023.

[W4] Multi-task Learning-Driven Volume and Slice Level Contrastive Learning for 3D Medical Image Classification
Jiayuan Zhu, Shujun Wang, Jinzheng He, Carola-Bibiane Schönlieb, and **Lequan Yu**.
Computational Mathematics Modeling in Cancer Analysis Workshop of MICCAI, pp. 110-120, 2022.

[W3] CateNorm: categorical normalization for robust medical image segmentation
Junfei Xiao, **Lequan Yu**, Zongwei Zhou, Yutong Bai, Lei Xing, Alan Yuille, and Yuyin Zhou.
Domain Adaptation and Representation Transfer Workshop of MICCAI, pp. 129-146, 2022.

[W2] 3D U-net with Multi-level Deep Supervision: Fully Automatic Segmentation of Proximal Femur in 3D MR Images
Guodong Zeng, Xin Yang, Jing Li, **Lequan Yu**, Pheng-Ann Heng, Guoyan Zheng.
Machine Learning in Medical Imaging (MIML) Workshop of (**MICCAI**), pp. 274-282, 2017.

[W1] 3D FractalNet: Dense Volumetric Segmentation for Cardiovascular MRI Volumes
Lequan Yu, Xin Yang, Jing Qin, Pheng-Ann Heng.
Whole-Heart and Great Vessel Segmentation Workshop of **MICCAI**, pp. 103-110, 2016. **(Oral)**

Book Chapters

[B4] Metal Artifact Reduction.
Zhicheng Zhang, Lingting Zhu, Lei Xing, and **Lequan Yu**.
Book Name: Medical Image Synthesis, 2023. Editor: Xiaofeng Yang

[B3] Deep Convolutional Networks for Automated Volumetric Cardiovascular Image Segmentation: From a Design Perspective.
Xiaomeng Li, **Lequan Yu**, Yueming Jin, Chi-Wing Fu, Lei Xing, and Pheng-Ann Heng.
Book Name: Meta-Learning with Medical Imaging and Health Informatics Applications, 2023. Editor: Hien Van Nguyen, Ronald Summers, and Rama Chellappa

[B2] Deep Convolutional Networks for Automated Volumetric Cardiovascular Image Segmentation: From a Design Perspective.
Xin Yang, **Lequan Yu**, Qi Dou, Jing Qin, and Pheng-Ann Heng.
Book Name: Cardiovascular Imaging and Image Analysis, 2018. Editor: Ayman El-Baz

[B1] Deep Cascaded Networks for Sparsely Distributed Object Detection from Medical Images
Hao Chen, Qi Dou, **Lequan Yu**, Jing Qin, Pheng-Ann Heng et al.
Book Name: Deep Learning for Medical Image Analysis, 2016. Editors: Kevin Zhou, Hayit Greenspan, and Dinggang Shen.

Patents

[P1] **Lequan Yu**, Kai Ma, Vivek Singh, and Terrence Chen. "Body landmark detection based on depth images." U.S. Patent 10,506,984, December 17, 2019.

PROFESSIONAL ACTIVITIES

Area Chair for MICCAI 2022 & 2023
Senior PC member of AAAI 2022 and IJCAI 2021
Co-organizer of ICCV 2023 workshop on "Computer Vision for Automated Medical Diagnosis"
Co-organizer of ICCV 2021 workshop on "Computer Vision for Automated Medical Diagnosis"

Selected Conference Reviews:
CVPR'19-22, ICCV'19&21, AAAI'20-22, MICCAI'18-21, ICLR'21-22, NeurIPS'22, SIGGRAPH'20, etc.

Selected Journal Reviews:
Nature Machine Intelligence, Nature Computational Science, Nature Communications, IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), International Journal of Computer Vision (IJCV), Medical Image Analysis (MedIA), IEEE Transactions on Medical Imaging (TMI), IEEE Transactions on Image Processing (TIP), IEEE Transactions on Biomedical Engineering (TBME), IEEE Transactions on Neural Networks and Learning Systems (TNNLS)

SELECTED AWARDS & HONORS

The world's top 1% scholars ranked by Clarivate Analytics	2023
MICCAI 2023 Young Scientist Publication Impact Award Runner-up	2023
Ranked Top 2% of Scientists on Stanford List	2022 & 2023
Rising Star of Science Award by Research.com	2022 & 2023
IEEE TMI Distinguished Reviewer Platinum Level	2022 & 2023
The World's First List of Top 150 Chinese Young Scholars in Artificial Intelligence	2022
Second-class Awards in Natural Sciences (rank: 4/5), Higher Education Outstanding Scientific Research Output Awards (Science and Technology) from MOE	2022
Best Paper Award of CMMCA workshop at MICCAI 2022	2022
Best Paper Honorable Mention Award of DART workshop at MICCAI 2022	2022
CUHK Young Scholars Thesis Award (the only awardee in Faculty of Engineering)	2020
Young Scientist Award Short-listed, Hong Kong Institution of Science	2019
Teaching Assistant of Merit, CSE CUHK	2018
MedIA-MICCAI'17 Best Paper Award	2017
MLMI@MICCAI'17 Best Paper Award	2017
AAAI 2017 Scholarship, San Fransisco, USA	2017
He Zhijun Scholarship (1/300+, the only awardee in College of Computer Science, ZJU)	2014
National Scholarship of China (1.8 %)	2012 & 2013 & 2014

INVITED TALKS

1. "Leveraging Deep Learning in Computational Pathology: from Single-modal to Multi-modal Analysis"
   at MICS seminar, November 2023.
   at CUHK TRS seminar, August 2023.
   at Zhejiang Lab, Hangzhou, July 2023.
   at Shanghai AI Lab, Shanghai, July 2023.
   at Computational Health seminar, Helmholtz AI, German, July 2023.
2. "Learning generalized medical visual representation from accompanied medical reports"
   at MICS online seminar, April 2023.
   at Department of Biomedical Engineering, SZU, April 2023.
3. "AI for Medical Imaging: Applications and Beyond"
   at ROAS Thrust, The Hong Kong University of Science and Technology (Guangzhou), February 2023.

at Beijing Academy of Artificial Intelligence, December 2022.
at AI and Big Data Research for Health Improvement Symposium, HKU, August 2022.
at Mini-Symposium on Interdisciplinary Research, Faculty of Science, HKU, January 2022.
at School of Biomedical Sciences, HKU, December 2021.

4. "Medical Image Analysis and Reconstruction with Data-efficient Learning"
at Beihang University, May 2022.
at Zhejiang University, May 2022.
at Nanjing University of Information Science and Technology, October 2021.
at Department of Electrical and Electronic Engineering, The University of Hong Kong, September 2021.
at The 8th Medical Imaging Computing Seminar, July 2021.
at Data Science and Computational Statistics Seminar series, University of Birmingham, February 2021.

5. "Towards Intelligent Healthcare: Medical Image Analysis and Reconstruction with Deep Learning"
at Department of Statistics and Actuarial Science, The University of Hong Kong, January 2021.
at Academic Forum of Institute of Medical Robotics, Shanghai Jiao Tong University, December 2020.
at Brain & Intelligence Lab, University of Electronic Science and Technology of China, December 2020.
at Department of Biomedical Engineering, City University of Hong Kong, December 2020.
at School of Computer Science and Engineering, Nanyang Technological University, October 2020.
at The First Affiliated Hospital, College of Medicine, Zhejiang University, September 2020.
at Youth Forum, Center on Frontiers of Computing Studies, Peking University, April 2020.
at School of Science and Engineering, The Chinese University of Hong Kong-Shenzhen, April 2020.
at Information Systems Technology and Design, Singapore University of Technology and Design, April 2020.
at Department of Computing, The Hong Kong Polytechnic University, March 2020.

6. "Deep Learning for Medical Image Analysis: from Feasibility to Generalization"
at Academy for Engineering and Technology, Fudan University, August 2019.
at SIST of ShanghaiTech University, July 2019.

TEACHING & MENTORING EXPERIENCE

Teaching at HKU:

STAT3612 Statistical Machine Learning (undergraduate)	Fall 2022 & 2023
STAT8021 Big Data Analytics (graduate)	Spring 2023 & 2024
STAT8307 Natural Language Processing and Text Analytics (graduate)	Spring 2023 & 2024
STAT6018 Research Frontiers in Data Science (graduate)	Spring 2024
BIOF1001 Introduction to Biomedical Data Science (undergraduate, guest lecture)	Fall 2022
APAI4011/STAT4011 Natural Language Processing (undergraduate)	Spring 2022

Teaching Assistant at CUHK:

CSCI3150 Introduction to Operating Systems (**Teaching Assistant of Merit**)	Spring & Fall 2017, Spring 2018
ENGG5108 Big Data Analytics	Fall 2016
CSCI3180 Principles of Programming Languages	Spring 2016
CSCI1130 Introduction to Computing Using Java	Fall 2015

Current Students:
Howard Tsai Hor Chan (BSc at HKU)(PhD Student, 2021-)
Fuying Wang (BEng at Tsinghua) (PhD Student, 2021-)
Weiqin Zhao (BEng at Beihang) (PhD Student, 2021-)
Lingting Zhu (BEng at ZJU) (PhD Student, 2021-) (HKU-PS)
Zhenchao Jin (MPhil at USTC) (PhD Student, 2022-)
Zhuo Liang (BSc at HKU) (PhD Student, 2022-)(HKU-PS)
Yan Miao (MPhil at McGill) (PhD Student, 2022-)(HKPF)
Yihang Chen (BSc at RUC)(PhD Student, 2023-)
Yanyan Huang (MPhil at ZJU)(PhD Student, 2023-)
Feng Wu (MPhil at ZJU)(PhD Student, 2023-)
Jiacheng Xu (BSc at HKU)(PhD Student, 2023-)(HKPF)
Liting Yu (BSc at XJTU)(PhD Student, 2023-)

Co-supervised Students:
Xuanyu Liu (Mphil at SUSTech) (PhD Student, 2021-)(co-advisor)
Yan Miao (MPhil at McGill)(PhD Student, 2022-)(HKPF) (w/ Wai-Kay Seto)
Pei Cai (MPhil at NTU)(PhD Student, 2023-) (w/ Jianpan Huang)

Previous Mentorship
Jiacheng Xu (Undergraduate Intern) (BSc at HKU → PhD at HKU)
Wing Kwan Pang (Undergraduate Intern) (BSc at HKU → MS Biostatistics at McGill)
Xi Zheng (2022 Summer Intern) (BSc at XJTU → IS PhD at UW)
Tengfei Cui (2022 Summer Intern) (BSc at XJ-Liverpool → MS Biostatistics at UW)
Yiqing Shen (2021 Summer Intern) (BSc at SJTU → CS PhD at JHU)
Ruichen Luo (2021 Summer Intern) (BEng at ZJU → ECE PhD at UMN) Xiaoyu Zhang (2021 Summer Intern) (BEng at ZJU → MCDS at CMU)
Zeqi Xiao (2021 Summer Intern) (BEng at ZJU → Intern at Shanghai AI Lab)
Yijun Yang (2021 Summer Intern) (BEng at SDU → PhD at HKUST-GZ)
Kang Li (Ph.D. at CUHK) (now, Postdoc at CUHK)
Shujun Wang (Ph.D. at CUHK) (now, Asst. Prof. at PolyU)
Xianzhi Li (Ph.D. at CUHK) (now, Assoc. Prof. at HUST)