

# CHENGHANG LI

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## EDUCATION

Thrust of Artificial Intelligence of Information Hub  
The Hong Kong University of Science & Technology Sep 2022 – Sep 2024  
(Guangzhou)

MPhil in Artificial Intelligence, GPA: 3.86/4.3

Department of Computer Science & Engineering,  
Sun Yat-sen University, Guangzhou Sep 2019 – Aug 2022  
MEng in Computer Science and Technology, GPA: 3.72/4

Collage of Polymer Science & Engineering,  
Sichuan University, Chengdu Sep 2015– July 2019  
BEng in Polymer Materials and Science, GPA: 3.70/4



## PUBLICATIONS

Lei JX, Wang R, Hu C, Lou X, Lv MY, Li C, Gai B, Wu XJ, Dou R, Cai D, Gao F. Deciphering tertiary lymphoid structure heterogeneity reveals prognostic signature and therapeutic potentials for colorectal cancer: a multicenter retrospective cohort study [J]. *International Journal of Surgery*, 2024 Jun 4. (JCR Q1, IF 15.3)

Lou W, Wan X, Li G, Lou X, Li C, Gao F, Li H. Structure embedded nucleus classification for histopathology images [J]. *IEEE Transactions on Medical Imaging*, 2024 Apr 12. (JCR Q1, IF 10.6)

Lv MY<sup>#</sup>, Cai D<sup>#</sup>, Li CH<sup>#</sup>, et al. Senescence-based colorectal cancer subtyping reveals distinct molecular characteristics and therapeutic strategies [J]. *MedComm*, 2023. (JCR Q1, IF 9.9)

Li C-H, Cai D, Zhong M-E, et al. Multi-Size Deep Learning Based Preoperative Computed Tomography Signature for Prognosis prediction of Colorectal Cancer [J]. *Frontier in Genetics*, 2022. (JCR Q2, IF 3.7)

Wang, C. C., Yin, H. B., Bai, S. J., Zhang, R., Li, C. H., Tang, M. Z., & Xu, Y. X. Probe the terminal interactions and their synergistic effects on polyisoprene properties by mimicking the structure of natural rubber [J]. *Polymer*, 2019. (JCR Q1, IF 4.6)

Gao F, Li CH, Wang X, Lou XY. Cell classification model, data sample labeling method and cell classification method: CN, CN114299028A[P]. 2022-04-08.

Clinically Acceptable Thresholds of Landmark Detection Errors in Cone Beam Computed Tomography (CBCT): A Quantitative Analysis of Their Impact on Three-Dimensional Cephalometric Measurements. *Journal: American Journal of Orthodontics & Dentofacial Orthopedics* (Reviewing, 4<sup>th</sup> author) (JCR Q1, IF 3.0)

CRCFound: A Colorectal Cancer CT Image Foundation Model Based on Self-Supervised Learning. *Advanced Science* (Submitting, 7<sup>th</sup> author) (JCR, Q1, 14.7)

Deep Learning for Predicting Recurrence and Treatment Response of Colorectal Cancer with Preoperative CT Images: A Retrospective Multicenter study. *eBioMedicine* (Submitting, co-first author) (JCR, Q1, 9.7)

A Comprehensive multi-omics atlas dissecting the mutational complexity and prognostic signatures in colorectal cancers. *Nature* (Submitting, 13<sup>th</sup> author).

## RESEARCH EXPERIENCE

**Comprehensive analyses of Computational Pathology**, Advisor: Asst. Prof. Yingcong CHEN Apr 2023 – Aug 2024  
*Master's Thesis, HKUST(Guangzhou)*

- Whole-slide image preprocessing & Multilevel analysis for cancer diagnosis and clinical treatment.
- Semantic segmentation of Tumor related Pathology tissue images.

- Cell-level nuclei segmentation and classification for Pathology tissue image.

**Assisted Segmentation of Tumor Cells in Pathology**, Advisor: Assoc. Prof. Feng GAO *Mar 2023 – Sep 2023*

*Group Leader, HKUST(GZ)*

- Pathology images tiling and tumor labeling. (Finish 4 private datasets by pathologist)
- Developed segmentation deep learning model for assistant of Pathologist.
- International Entrepreneurship Competition of HKUST One Million Dollar, Guangzhou 2023

**Multi-Omics Chinese Colorectal Cancer Cohort Analysis**, Advisor: Assoc. Prof. Feng GAO *Sep 2021 – Jul 2023*

*Research Assistant, The Six Affiliated Hospital of SYSU*

- Build SGE computing cluster with over 2000 cores & assist in deploying PB-level large Beegfs Storage
- Assist in processing PB-level gene sequencing data (RNAseq, WGS, WGBS)
- Multimodal Colorectal Cancer data Matching and Cleaning, 1000 Sequencing data, over 9k private pathology images and over 15k radiology imaging data.

**Radiology analysis for preoperative prognosis**, Advisor: Assoc. Prof. Feng GAO *Jun 2021 – Jul 2022*

*Master's Thesis, Sun Yat-sen University (SYSU)*

- Assist in building a big data platform for radiology image and computer cluster for the Sixth Affiliated Hospital of SYSU.
- Radiology image analysis including radiomic and deep learning methods for recurrence risk prediction of Colorectal Cancer patients for clinical assistant decision-making.

**Oligopeptide cross-linking modification of polyisoprene**, Advisor: Assoc. Prof. Yunxiang XU

*Bachelor's thesis, Sichuan University*

*Aug 2018 – Jun 2019*

- Synthesis of oligopeptides, including synthesis route design, chemical reaction, and purification.
- Conduct the cross-linking modification of polyisoprene using the oligopeptides and performance evaluation.

## INTERNSHIP EXPERIENCE

### Colonoscopy polyp detection and segmentation

*MicroPort – SenseTime medical program, Shanghai*

*Dec 2021 - Jun 2022*

- Endoscopic image collection and organization for polyp labeling. (A dataset with over 5k private colonoscopy images)
- Design the detection and segmentation model based on ResUNet++ framework and evaluation on external validation cohort of the Sixth Affiliated Hospital of Sun Yat-sen University.

### High Performance Computing cluster building and maintenance

*Bioland Lab, Guangzhou*

*Dec 2020 - Dec 2021*

- Building the computing clusters – system installation, networks configuration, creating job sketching system.
- Optimizing server performance and solving the emergencies.

### Genomic analysis of Colorectal Cancer

*BGI Genomics, Shenzhen*

*Apr 2020 - Sep 2020*

- Align the whole genomic sequencing reads to the reference human genome.
- Integrate genetic data with clinical and phenotypic information to identify genotype-phenotype correlations.

### Clinical pathway analysis

*The sixth affiliated hospital of Sun Yat-sen University, Guangzhou*

*Jul 2019 – Aug 2019*

- Learning to visualize pathway graphs in R and statistics analysis.
- Completing differential pathway analysis for stage II/III Colorectal cancer.

## RESEARCH INTERESTS

- Deep Learning & Computer Vision
- Radiology Imaging
- Computational pathology
- Genomic Sequencing Analysis

## SKILLS

- Coding: C, MATLAB, R, Python, Pytorch, Perl, etc.
- Writing website for project group (Hugo & JavaScript)
- Deep learning and machine learning (Medical analysis)
- Clinical analysis and R plotting
- Configuration and maintenance of large computer server cluster