# Youcheng Li

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## Summary

I am an PhD candidate at School of Intelligence and Science Thechnology of Peking University, supervised by Prof. Liwei Wang. I am interested in the application of machine learning, especially computer vision in the field of biomedical engineering. Please see my personal website for an overview. My mission: develop an artificial intelligence medical diagnosis system for social good.

## Education

**Xian Jiaotong University** *Sept 2019 – July 2023*
*BS in Artificial Intelligence*

- GPA: 4.0/4.3
- **Scholarship:** National Scholarship (top 1%), Mitacs Globalink Research Scholarship (top 1%), China Scholarship Council Award (top 1%), MEGVII Scholarship (top 3%), Zheng Guobin Scholarship (top 3%)

**Peking University** *Sept 2023 – Present*
*PhD in Artificial Intelligence*

- **Scholarship:** National Scholarship (top 1%)

## Experience

**Embedded Engineer Assistant** *Shenzhen, China*
*Shenzhen Anke High-tech Co., Ltd.* *July 2020–Sept. 2020*

- Assisted in hardware development for advanced medical devices, focusing on embedded system integration and testing during a 2-month internship.
- Collaborated with engineers to prototype cutting-edge medical technologies, contributing to circuit debugging & firmware optimization.
- Gained hands-on experience in medical device workflows, including requirements analysis, component validation, and documentation.
- Strengthened practical skills in ARM-based microcontrollers, RTOS, and hardware-software co-design under professional mentorship.

**Research Assistant** *Canada (Remote)*
*Western University* *Sept. 2022–July 2023*

- Developed a novel multi-scale manifold learning method for spatial transcriptomics cell segmentation during a Mitacs & China Scholarship Council-funded online internship under Prof. Pingzhao Hu.
- Implemented algorithms using Python and PyTorch, benchmarking against state-of-the-art approaches (e.g., Cellpose, StarDist) on single-cell resolution spatial datasets.
- Contributed to experimental design, statistical validation, and manuscript preparation with cross-disciplinary collaborators.

**Algorithm Research Intern** *Beijing, China*
*Yizhun Intelligent Technology Co., Ltd.* *Jan. 2023–Present*

- Led the development of deep learning algorithms for breast cancer screening and diagnosis, significantly enhancing the accuracy and reliability of clinical decision-making.
- Successfully published research on real-time ultrasound lesion detection at the prestigious **MICCAI 2023** conference.
- Developed a real-time breast ultrasound detection algorithm for dynamic lesion localization, achieving >**95% sensitivity** and reducing inference latency by **15%** via model compression & hardware acceleration.
- Designed a deep learning-based ductal carcinoma in situ (DCIS) diagnostic algorithm, awarded the **National First Prize** at the 2nd National Digital Health Innovation Application Competition (hosted by China's National Health Commission).

- Responsible for processing complex ultrasound data; optimized data quality and the credibility of subsequent analysis using advanced algorithmic techniques.

**Large Model Algorithm Engineer** *Beijing, China*
*Beijing Yisuo Technology Co., Ltd.* *June. 2025 – Present*

- Spearheaded the agent development roadmap; successfully assembled and led a high-performance team of front-end, back-end, and agent engineers to ensure on-time project delivery.
- Led the end-to-end development of an agent workflow, including prompt engineering and optimization, and built auxiliary tools that significantly boosted agent performance and reliability.
- Developed the project's Minimum Viable Product (MVP), playing a key role in the company's financing efforts.
- Drove project milestones and enhanced team efficiency by strategically assigning tasks and optimizing collaborative workflows.

## Publications

Yu H, **Li Y**, Zhang N, et al. A Foundational Generative Model for Breast Ultrasound Image Analysis[J]. arXiv preprint arXiv:2501.06869, 2025.

Yu H, **Li Y**, Wu Q L, et al. Mining negative temporal contexts for false positive suppression in real-time ultrasound lesion detection[C]//International Conference on Medical Image Computing and Computer-Assisted Intervention. Cham: Springer Nature Switzerland, 2023: 3-13.

Yu H, **Li Y**, Zhang N, et al. Knowledge-driven AI-generated data for accurate and interpretable breast ultrasound diagnoses[J]. arXiv preprint arXiv:2407.16634, 2024.

**Li Y**, Lac L, Liu Q, et al. ST-CellSeg: Cell segmentation for imaging-based spatial transcriptomics using multi-scale manifold learning[J]. PLOS Computational Biology, 2024, 20(6): e1012254.

Yan H, Dai C, Xu X, et al. Using artificial intelligence system for assisting the classification of breast ultrasound glandular tissue components in dense breast tissue[J]. Scientific Reports, 2025, 15(1): 11754.

## Technologies

**Languages:** Python, C++, C, Java, Objective-C, C#, SQL, JavaScript