# Xin Xiong

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## Education

- PhD in Computational Biology Hong Kong Baptist University, 2025 (Expected) Advisor: Professor Liang Tian
- Master of Engineering in Computer Technology Shanghai Jiao Tong University, 2021 Advisor: Professor Hai Zhao
- Bachelor of Engineering in Bioengineering Xi'an Polytechnic University, 2010

# Work Experience

- Visiting Student (in the group of Prof. Nicolas Chevrier) University of Chicago, 2025.4 - 2025.6
  - Data analysis of organ interactions in colitis models.

#### • Research Assistant

Shenzhen Institutes of Advanced Technology (SIAT), CAS, 2020-2021

- Focused on the deconvolution of bulk cell RNA-seq data from primary solid tumors.
- Investigated the relationship between specific gene expression programs (e.g., EMT) and the abundance of infiltrated immune cells in the tumor microenvironment.

### • Research Assistant

Southern University of Science and Technology (SUSTech), 2019-2020

- Participated in a project on single-guide RNA (sgRNA) design for gene editing using the CRISPR/Cas9 system.
- Research Assistant

Interdisciplinary Research Center of Biology and Chemistry (IRCBC), CAS, 2016-2019

 Developed machine learning-based prediction algorithms for CCS values and contributed to the development of web servers (MetCCS and LipidCCS).

### • Bioinformatician

Genminix Informatics Ltd. Co., 2011-2016

 Developed a method for quick search and visualization of feed-forward loops, leading to a Chinese patent (201410112193X).

## **Teaching Experience**

- Teaching Assistant, Thermal and Statistical Physics (PHYS3047), 2023-2024
- Teaching Assistant, Thermal and Statistical Physics (PHYS3047), 2022-2023

## Honors

- 2024 Best Speaker Award, Peking University Shenzhen Graduate School, China
- 2010 Outstanding Graduation Thesis, Xi'an Polytechnic University, China
- 2010 Outstanding Class Leader, Xi'an Polytechnic University, China
- 2008 2010 Encouragement Scholarship, Xi'an Polytechnic University, China

## Presentations

• DeSide2: A Deep Learning Framework for Precise Gene Expression Deconvolution in the Tumor Microenvironment.

Oral Presentation, 29th International Conference on Statistical Physics (StatPhys29), July 13–18, 2025, Florence, Italy.

- DeSide2: A Deep Learning Framework for Precise Gene Expression Deconvolution in the Tumor Microenvironment. Oral Presentation, *HKBU International Advisory Board of Graduate Studies Annual Meeting*, June 25–26, 2025, Hong Kong Baptist University, Hong Kong, China.
- DeSide: A Unified Deep Learning Approach for Cellular Deconvolution of the Tumor Microenvironment.

Oral Presentation, 1st AI for Science PhD Student Academic Forum in the Guangdong-Hong Kong-Macao Greater Bay Area, November 1, 2024, Peking University Shenzhen Graduate School, Shenzhen, China.

• DeSide: A Unified Deep Learning Approach for Cellular Decomposition of Bulk Tumors Based on Limited scRNA-seq Data.

Poster Presentation, 28th International Conference on Statistical Physics (StatPhys28), August 7–11, 2023, University of Tokyo, Tokyo, Japan.

## Publications

\$ denotes equal contributions

- \* denotes corresponding author(s)
- Xiong, X.<sup>\$</sup>, Liu, Y.<sup>\$</sup>, Pu, D., Yang, Z., Bi, Z., Tian, L.<sup>\*</sup>, and Li, X.<sup>\*</sup> (2024). DeSide: A unified deep learning approach for cellular deconvolution of tumor microenvironment. *Proc. Natl. Acad. Sci. U. S. A.* 121, e2407096121. GitHub
- Zhou, Z., Luo, M., Chen, X., Yin, Y., Xiong, X., Wang, R., and Zhu, Z.-J.\* (2020). Ion mobility collision cross-section atlas for known and unknown metabolite annotation in untargeted metabolomics. *Nat. Commun.* 11, 4334.

- Shen, X., Wang, R., Xiong, X., Yin, Y., Cai, Y., Ma, Z., Liu, N., and Zhu, Z.-J.\* (2019). Metabolic reaction network-based recursive metabolite annotation for untargeted metabolomics. *Nat. Commun.* 10, 1516.
- Zhou, Z., Shen, X., Chen, X., Tu, J., Xiong, X., and Zhu, Z.J.\* (2019). LipidIMMS Analyzer: integrating multi-dimensional information to support lipid identification in ion mobility—mass spectrometry based lipidomics. *Bioinformatics* 35.
- Zhou, Z., Tu, J., Xiong, X., Shen, X., and Zhu, Z.J.\* (2017). LipidCCS: prediction of collision cross-section values for lipids with high precision to support ion mobility-mass spectrometry-based lipidomics. *Anal. Chem.* 89, 9559–9566.
- Zhou, Z., Xiong, X., and Zhu, Z.-J.\* (2017). MetCCS predictor: a web server for predicting collision cross-section values of metabolites in ion mobility-mass spectrometry based metabolomics. *Bioinformatics* 33, 2235–2237.

## References

• Prof. Liang Tian Associate Professor Department of Physics Hong Kong Baptist University Email: liangtian@hkbu.edu.hk Relationship: Principal Supervisor, Ph.D. studies

### • Prof. Xuefei Li

Principal Investigator Shenzhen Institutes of Advanced Technology (SIAT) Chinese Academy of Sciences Email: xuefei.li@siat.ac.cn Relationship: Co-supervisor, DeSide Project

#### • Dr. Qianyuan Tang

Assistant Professor Department of Physics Hong Kong Baptist University Email: tangqy@hkbu.edu.hk Relationship: Ph.D. Candidature Defense Committee Member

#### • Prof. Nicolas Chevrier

Associate Professor Pritzker School of Molecular Engineering The University of Chicago Email: nchevrier@uchicago.edu Relationship: Mentor during visiting study