Lingyu **LI**

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CV of Miss Lingyu Li

Bio.   Postdoctoral Fellow with wide-ranging expertise in **bioinformatics and machine learning research** and extensive experiences in **biomedical data analysis and statistical evaluation**, able to work independently and as a collaborative team member.

🎓 Educations

Aug 2023–	**Postdoctoral Fellow in Bioinformatics**, *The University of Hong Kong*, Hong Kong SAR, China **Project** : Discovering fine-grained ligand-receptor interaction from spatial RNA-seq and HE image *Advisor : Dr. Yuanhua Huang*
Sep 2019–Jun 2023	**Ph.D. in Biomedical Engineering**, *Shandong University*, Jinan, China **Dissertation** : Biomarker discovery methods based on connected network regularized feature selection *Advisor : Prof. Zhi-Ping Liu*, **GPA** : 94.80/100 | **Rank** : 1/44
Dec 2021–Jul 2023	**Joint training Ph.D. in Bioinformatics**, *The University of Hong Kong*, Hong Kong SAR, China **Collaboration** : Application of Boolean networks and optimization algorithms in bioinformatics *Advisor : Prof. Wai-Ki Ching*
Sep 2016–Jun 2019	**M.Sc. of Computational Mathematics**, *Shandong Normal University*, Jinan, China **Dissertation** : Numerical methods and theoretical analysis of a class of groundwater pollution problems *Advisor : Prof. Ziwen Jiang*, **GPA** : 3.98/5.0 | **Rank** : 1/8
Sep 2012–Jun 2016	**B.Sc. of Mathematics and Applied Mathematics**, *Shandong Normal University*, Jinan, China **Dissertation** : Uniform convergence of function term series and its application *Advisor : Prof. Jinjun Fan*, **GPA** : 3.51/5.0 | **Rank** : 26/204

☰ Researches

Bioinformatics :	Spatial transcriptomics, Single-cell data science, Biomarker discovery, Feature selection, Boolean network
Math & Statistics :	Sparse statistical learning, Network-constrained regularization, Inverse problem, Numerical solution of PDEs

📖 Publications

* denotes corresponding author.
First Author :

1. **Lingyu Li**, Tianjie Wang, Zhuo Liang, Lequan Yu, Yuanhua Huang*. Super resolved ligand-receptor interaction discovery by fusing spatial RNA-seq and histology images. **Nature Cell Biology** (SCI, JCR : Q1, Rank : 9/205, IF : 17.3), Under Review, Apr 2025.

2. **Lingyu Li**, Liangjie Sun, Guangyi Chen, Chi-Wing Wong, Wai-Ki Ching*, Zhi-Ping Liu*. LogBTF : Gene regulatory network inference using Boolean threshold network model from single-cell gene expression data, **Bioinformatics** (SCI, JCR : Q1, Rank : 26/198, IF : 6.937), vol.39, no.5, btad256, Apr 2023.

3. **Lingyu Li**, Zhi-Ping Liu*, Biomarker discovery from gene expression data by connected network-constrained support vector machine, **Expert Systems with Applications** (SCI, JCR : Q1, Rank : 6/85, IF : 8.665), vol.226, 120179, Sep 2023.

4. **Lingyu Li**, Zhi-Ping Liu*, A connected network-regularized logistic regression model for feature selection, **Applied Intelligence** (SCI, JCR : Q2, Rank : 87/198, IF : 5.086), vol.52, no.10, pp.11672-11702, Jan 2022.

5. **Lingyu Li**, Zhi-Ping Liu*, Detecting prognostic biomarkers of breast cancer by regularized Cox proportional hazards models, **Journal of Translational Medicine** (SCI, JCR : Q1, Rank : 21/189, IF : 8.459), vol.19, pp.1-20, Dec 2021.

6. **Lingyu Li**, Zhi-Ping Liu*, Biomarker discovery for predicting spontaneous preterm birth from gene expression data by regularized logistic regression, **Computational and Structural Biotechnology Journal** (SCI, JCR : Q1, Rank : 75/313, IF : 7.271), vol.18, pp.3434-3446, Nov 2020.

7. **Lingyu Li**, Wai-Ki Ching, Zhi-Ping Liu*, Robust biomarker screening from gene expression data by stable machine learning-recursive feature elimination methods, **Computational Biology and Chemistry** (SCI, JCR : Q2, Rank : 76/169, IF : 3.737), vol.100, 107747, Jul 2022.

8. **Lingyu Li**, Yousif A. Algabri, Zhi-Ping Liu*. Identifying diagnostic biomarkers of breast cancer based on gene expression data and ensemble feature selection, **Current Bioinformatics** (SCI, JCR : Q1, Rank : 22/85, IF : 4.850), vol.18, no.3, pp.232-246, Mar 2023.

9. **Lingyu Li**, Ziwen Jiang*, Zhe Yin*, Compact finite-difference method for 2D time-fractional convection–diffusion equation of groundwater pollution problems, **Computational and Applied Mathematics** (SCI, JCR : Q2, Rank : 29/331, IF : 2.239), vol.39, no.3, 142, May 2020.

10. **Lingyu Li**, Ziwen Jiang*, Zhe Yin, Fourth-order compact finite difference method for solving two-dimensional convection–diffusion equation, **Advances in Difference Equations** (SCI, JCR : Q1, Rank : 7/489, IF : 2.803), vol.2018, no.1, pp.1-24, Jul 2018.

11. **Lingyu Li**, Zhe Yin*, Numerical simulation of groundwater pollution problems based on convection diffusion equation, **American Journal of Computational Mathematics**, vol.7, no.3, pp.350–370, Sep 2017.

12. **Lingyu Li**, Zhi-Ping Liu*, "Discovery of spontaneous preterm birth biomarkers based on machine learning", *Journal of Nanjing University (Natural Sciences Edition)* (**In Chinese**), vol.57, no.5, pp.767-774, Sep 2021.

13. **Lingyu Li**, Jinjun Fan*, "Uniform convergence of function term series and its application", *Journal of Shandong Normal University (Natural Science Edition)* (**In Chinese**), vol.31, no.4, pp.12–19, Dec 2016.

Contributing Author :

1. Fatemeh Keikha, **Lingyu Li**, Wai-Ki Ching, Zhi-Ping Liu*. NetWalkRank : Cancer driver gene prioritization in multiplex gene regulatory networks by a random walk approach. **IEEE/ACM Transactions on Computational Biology and Bioinformatics** (**SCI, JCR : Q1, Rank : 23/170, IF : 4.500**), Submitted, Nov 2023 ; Revised, Mar 2025.

2. Yousif A. Algabri, **Lingyu Li**, Zhi-Ping Liu*, scGENA : A single-cell gene co-expression network analysis framework for clustering cell types and revealing biological mechanisms, **Bioengineering-Basel** (**SCI, JCR : Q2, Rank : 45/122, IF : 5.046**), vol.9, Jun 2022.

3. Yaohua Chang, **Lingyu Li**, Zhi-Ping Liu*. Uncovering differential functions in cancer : A network ontology analysis of gene regulation rewiring, Completed, Dec 2023. (`https://github.com/LingyuLi-math/GO4Cancer`).

4. El Bairi K, Haynes H R, Blackley E, et al. (Rank : 132), The tale of TILs in breast cancer : A report from the international immuno-oncology biomarker working group, **NPJ Breast Cancer** (**SCI, JCR : Q1, Rank : 49/322, IF : 7.519**), vol.7, Jun 2021.

Patents :

1. Zhi-Ping Liu*, **Lingyu Li**, Jiaxin Yang, Chuanyan Wu, Rui Gao. A prognostic biomarker identification system, Page bookmark : CN117352048A, Jan 2024.

💡 Presentations

1. **Lingyu Li**, Yuanhua Huang*, Nucleus-resolved ligand-receptor interaction discovery by fusing spatial RNA-seq and histology images. in Human Cell Atlas (HCA) Asia 2024 Meeting, **Poster Presentation**, Hong Kong Science Park, Hong Kong, Dec 2024.

2. **Lingyu Li**, Yuanhua Huang*, Super resolved ligand-receptor interaction discovery by fusing spatial RNA-seq and histology images. in The 32nd Conference on Intelligent Systems for Molecular Biology (ISMB), **Top Conferences in Bioinformatics**, **Oral Presentation** 20 mins, Montreal Canada, Jul 2024.

3. **Lingyu Li**, Yuanhua Huang*, Fine ligand-receptor interaction discovery by fusing spatial transcriptomics and histology stains. in The 1st HKU-CUHK Joint Postdoctoral Biomedical Sciences Symposium, **Oral Presentation**, Hong Kong, Mar 2024.

4. **Lingyu Li**, Zhi-Ping Liu*, Identifying diagnostic biomarkers of high-grade serous ovarian cancer based on geneexpression data and machine learning methods. in *The Sixth CCF Bioinformatics Conference*, **Oral Presentation**, Qingdao Shanong, Aug 2021.

5. **Lingyu Li**, Zhi-Ping Liu*, Discovery of spontaneous preterm birth biomarkers based on machine learning. in *CCF Conference on Artificial Intelligence*, **Poster Presentation**, Yantai Shandong, Jul 2021.

👥 Projects

Nov 2020 - Oct 2024	**Research on Mathematical Models and Algorithms in Breast Cancer Precision Medicine** – NSFC, National Key R&D Program, NO. 2020YFA0712402. – Participant.
Jan 2020 - Dec 2023	**Research on Bioinformatics Methods for Integrating Multi-level Omics Data to Discover Complex Disease Biomarkers** – NSFC, General Projects, NO. 61973190. – Participant (main).
Jul 2021 - Jun 2023	**Analysis and Prediction of Adverse Pregnancy Outcomes using Peripheral Blood Metabolomics Data of Pregnant Women undergoing Assisted Peproduction** – Collaborate with the Reproductive Medicine Research Center of Shandong University. – Participant (main).
Jul 2019 - Jun 2021	**Generalized Fractional Equation of Surface Growth : Modeling, Calculation, Analysis and Application** – Natural Science Foundation of Shandong Provincial, NO. ZR2019BA026. – Participant.

♡ Honors & Awards

Apr 2024	ISMB 2024 Conference Travel Fellowships from International Society for Computational Biology (**ISCB**)
Mar 2023	SDU 2023 outstanding graduates
Oct 2022	SDU 2022 *Ji Defa* Postgraduate Scholarship for PhD (**Higher** than first-class academic scholarship)
Jun 2022	HEU summer school on "Data and modeling in Biomathematics", Obtained the achievement award
Sep 2021	The Scholarship under Shandong University's Exchange Program (with **HKU**)
2021 & 2022	SDU 2021 & 2022 Outstanding Postgraduate Cadre Award (**twice**)
Jul 2021	FDU summer school on "Application and Innovation of Data Science", Obtained the graduation certificate
2021 & 2022	SDU advanced individuals in innovation and entrepreneurship (**twice**)
2021	SDU outstanding communist youth league member
2020 & 2022	SDU first-class academic scholarship for PhD (**twice**) ; SDU outstanding graduate student (**three times**)
2020 & 2021	PKU 2nd & 3rd summer school on "Biostatistics", Completed the course and obtained the graduation certificate
Dec 2019	SDU graduate innovation competition award
Jan 2019	SDNU 2019 outstanding graduates
Oct 2017	Shandong province 2017 excellent bachelor degree thesis
Oct 2013	National Encouragement Scholarship

👤 Professional service

2022–Present	Currently, member of the Network Biology Committee of the Chinese Bioinformatics Society (in preparation), member of the Chinese Artificial Intelligence Society, and member of the Chinese Automation Society. Simultaneously, serves as Peer Reviewer for several well-known journals and conference papers : *Bioinformatics*, *Communications Biology*, *iScience*, *Scientific Reports*, *BMC Cancer*, *Small Methods*, *Neural Networks*, *Computational Biology and Chemistry*, *Briefings in Functional Genomics*, *Biophysics Reports*, *BMC Medical Informatics and Decision Making*, *Hacettepe Journal of Mathematics & Statistics*, *Computers in Biology and Medicine*, *ICIC2024 Conference*(**CCF C**), *ICAI2024 Conference*, etc.

✏ Teaching assistant

Sep 2019–Jan 2020	Teaching Assistant, **Complex Functions and Laplace Transform**, Automation, Shandong University.
Feb 2019–Jun 2019	Teaching Assistant, **Probability Theory and Mathematical Statistics**, Shandong Jiaotong University.
Feb 2019–Jun 2019	Teaching Assistant, **Ordinary Differential Equations**, CS 1701 and 1702, Shandong Normal University.
Feb 2018–Jan 2019	Teaching Assistant, **Advanced Algebra I&II**, Statistics 1801 and 1802, Shandong Normal University.
Sep 2018–Jan 2019	Teaching Assistant, **Advanced Mathematics II**, Economics 1701, Shandong Normal University.
Sep 2017–Jan 2019	Teaching Assistant, **Mathematical Analysis I&II&III**, Mathematics 1703 and 1704, Shandong Normal University.

⚙ Skills

Programming Skills :	R (6-year), Python (5-year), Matlab (11-year), Linux (4-year), LaTeX(8-year), **C**, Spass
Computer Certificates :	Computer 2-level **C language**, Computer 3-level **Network technology**
Other Certificates :	Putonghua proficiency **second-level A**, Teacher qualification certificate **Mathematics**

Languages

English :   Reading   ● ● ● ● ●   CET-4 : 514

             Listening   ● ● ● ● ○   CET-6 : 467

             Speaking   ● ● ● ○ ○

(Last update : 20 April 2025)