

ZIQI ZHANG

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EDUCATION

Georgia Institute of Technology, GA, USA Sep 2020 - present

Ph.D. in Computational Science and Engineering

- Advisor: Prof. Xiuwei Zhang

Georgia Institute of Technology, GA, USA Sep 2020 - Dec 2023

Master of Computational Science and Engineering

- Advisor: Prof. Xiuwei Zhang

Georgia Institute of Technology, GA, USA Sep 2019 - present

Master of Electrical and Computer Engineering

Beihang University, Beijing, China Sep 2015 - July 2019

Bachelor of Electronic and Information Engineering

WORK EXPERIENCE

Computational Research Intern May 2024 - August 2024

Department of Cellular and Tissue Genomics, Genentech, CA, USA

Graduate Research Assistant May 2020 - Present

Georgia Institute of Technology, GA, USA

PUBLICATION

Journal & Conference papers

1. **Ziqi Zhang**, Xinye Zhao, Mehak Bindra, Peng Qiu, and Xiuwei Zhang. “scDisInFact: disentangled learning for integration and prediction of multi-batch multi-condition single-cell RNA-sequencing data”, *Nature Communications*, 2024
2. **Ziqi Zhang**, Haoran Sun, Rangunathan Mariappan, Xinyu Chen, Xi Chen, Mika S Jain, Mirjana Efremova, Sarah A Teichmann, Vaibhav Rajan, Xiuwei Zhang. “scMoMaT jointly performs single cell mosaic integration and multi-modal bio-marker detection”, *Nature Communications*, 2023
3. **Ziqi Zhang**, Chengkai Yang, and Xiuwei Zhang. “scDART: integrating unmatched scRNA-seq and scATAC-seq data and learning cross-modality relationship simultaneously” *Genome Biology*, 2022
4. **Ziqi Zhang** and Xiuwei Zhang. “Inference of high-resolution trajectories in single-cell RNA-seq data by using RNA velocity”, *Cell Reports Methods*, 2021
5. Vaibhav Rajan, **Ziqi Zhang**, Carl Kingsford, and Xiuwei Zhang. “Maximum likelihood reconstruction of ancestral networks by integer linear programming”, *Bioinformatics*, 2021

Preprints & Working papers

1. **Ziqi Zhang**, Jongseok Han, Le Song, and Xiuwei Zhang. “CeSpGRN: Inferring cell-specific gene regulatory networks from single cell multi-omics and spatial data”, *BioRxiv*, 2023
2. Hechen Li, **Ziqi Zhang**, Michael Squires, Xi Chen, Xiuwei Zhang, “scMultiSim: simulation of multi-modality single cell data guided by cell-cell interactions and gene regulatory networks”, *under review at Nature Methods*, 2023
3. **Ziqi Zhang** and Xiuwei Zhang. “Velosim: Simulating single cell gene-expression and RNA velocity”, *BioRxiv*, 2021

Workshop

1. **Ziqi Zhang** and Xiuwei Zhang. “Integrating unmatched scRNA-seq and scATAC-seq data and learning cross-modality relationship simultaneously” **Spotlight**, *16th Machine Learning in Computational Biology (MLCB)*, 2021
2. **Ziqi Zhang**, Haoran Sun, Rangunathan Mariappan, Xi Chen, Mika S Jain, Mirjana Efremova, Sarah A Teichmann, Vaibhav Rajan, Xiuwei Zhang. “Integrating unpaired scRNA-seq and scATAC-seq with unequal cell type compositions” *ICML workshop on Computational Biology*, 2021

Presentations

1. Poster presentation: *scDisInFact: the disentangled learning for integration and prediction of multi-batch multi-condition single-cell RNA sequencing data*, MCBIOS, 2024 [**Best poster presentation award**]
2. Poster presentation: *CeSpGRN: Inferring cell-specific gene regulatory network from single cell multi-omics data and spatial data*, CSHL Single Cell Analysis, 2023
3. Talk: *Inferring GRNs and CCIs using single-cell sequencing data*, InQuBETA workshop: Computational Problems in Single Cell Transcriptomics and Multi-omics, 2023
4. Talk: *scDisInFact: the disentangled learning for integration and prediction of multi-batch multi-condition single-cell RNA sequencing data*, AWSOM-Atlanta Workshop on Single-cell Omics, 2023 [**Best oral presentation award**]
5. Poster presentation: *scDisInFact: the disentangled learning for integration and prediction of multi-batch multi-condition single-cell RNA sequencing data*, RSGDREAM, 2022
6. Talk: *scDisInFact: the disentangled learning for integration and prediction of multi-batch multi-condition single-cell RNA sequencing data*, HotCSE, School of Computational Science and Engineering, Georgia Institute of Technology, 2022
7. Talk: *scMoMaT: Multimodal Data Integration Software*, AWSOM-Atlanta Workshop on Single-cell Omics, 2022
8. Talk: *Integrating unmatched scRNA-seq and scATAC-seq data and learning cross-modality relationship simultaneously*, MLCB, 2021 [**Spotlight presentation**]
9. Flash talk: *Learning latent embedding of multi-modal single cell data and cross-modality relationship simultaneously*, CSHL, 2021
10. Poster presentation: *CeSpGRN: Inferring cell-specific gene regulatory networks from single cell gene expression data*, RECOMB, 2022
11. Poster presentation: *scMoMaT: Integrating arbitrary number of single-cell multi-omics matrices using matrix-trifactorization*, USC-QCB, 2022
12. Poster presentation: *Inference of multiple trajectories in single-cell RNA-Seq data from RNA-velocity*, VIB, 2020
13. Poster presentation: *Inference of multiple trajectories in single-cell RNA-Seq data from RNA-velocity*, RSGDREAM, 2020
14. Poster presentation: *Inference of multiple trajectories in single-cell RNA-Seq data from RNA-velocity*, CSHL-Asia, 2020
15. Flash talk: *Computational methods to study cell mechanisms from single cell data*, Georgia Scientific Computing Symposium (GSCS), 2020

TEACHING

Courses

1. **Head Teaching Assistant:** *CSE 6140 Algorithm* 2021Fall
2. **Teaching Assistant:** *CSE 8803 Machine learning in Computational Biology* 2021Spring
3. **Teaching Assistant:** *CSE 6140 Algorithm* 2020Fall

Advisee

1. **Chandra Sekhar Reddy E:** under graduate student intern *Sept 2023-Now*
Project: *Prediction of single-cell gene expression under unseen perturbations*
2. **Xinye Zhao:** graduate student in Electrical and Computer Engineering *Nov 2021-Oct 2022*
Project: *scDisInFact: disentangled learning for integration and prediction of multi-batch multi-condition single cell RNA-sequencing data*
3. **Xinyu Chen:** graduate student in Bioengineering *August 2021-Nov 2021*
Project: *scMoMaT: Mosaic integration of single cell multi-omics data using matrix tri-factorization*
4. **Jongseok Han:** graduate student in Computational Science and Engineering *Jun 2021-Nov 2021*
Project: *Inferring cell-specific gene regulatory networks from single cell gene expression data*
5. **Chengkai Yang:** undergraduate student in Computer Science *Jun 2020-Jan 2021*
Project: *Learning latent embedding of multi-modal single cell data and cross-modality relationship simultaneously*

AWARD

Ph.D. in Georgia Tech

1. Thanks a teacher award *as teaching assistant in CSE6140* *Nov 2020*

Undergraduate in Beihang University

1. Outstanding Undergraduate in Beihang University *2019*
2. Chinese Graduate Entrance Exam Waiver *2019*
3. Learning Merit Scholarship in Beihang University *2018*
4. Scholarship for student excellent in Science and Technology competition *2018*
5. The Third Prize of National Undergraduate Electronic Design Contest *2017*
6. The First Prize of BUAA Physics competition *2015*

SERVICE

- Journal reviewer:** *Patterns, Bioinformatics, Bioinformatics advance, Cell Reports Methods, Nature Communications, BMC Bioinformatics, BMC Endocrine Disorders, Journal of Agricultural, Biological, and Environmental Statistics*
- Conference reviewer:** *RECOMB2024, MLCB2023, ISMB2023, RECOMB 2022, ISMB 2022*

SKILLS

- Languages:** *Chinese, English*
- Programming:** *Python, Pytorch, R, LaTeX, Linux, MATLAB, C++*