

Juexiao Zhou

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Hi!

I'm Juexiao Zhou, Joshua Chou, 周景晓

PhD student @KAUST

Computer Science and Bioinformatics



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Affiliation:

[Structural and Functional Bioinformatics \(SFB\) Group](#)
[Computational Bioscience Research Center \(CBRC\)](#)
[King Abdullah University of Science and Technology \(KAUST\)](#)
[CV \(last update: Jan 2022\)](#), [Github](#), [LinkedIn](#), [ORCID](#), [Google Scholar](#)

Education

- **PhD Student in Computer Science**, Supervised by Prof. [Xin Gao](#), [Computational Bioscience Research Center \(CBRC\)](#), [King Abdullah University of Science and Technology](#), Dec 2021 - Present
- **Master of Science, M.S. in Computer Science**, Supervised by Prof. [Xin Gao](#), [Computational Bioscience Research Center \(CBRC\)](#), [King Abdullah University of Science and Technology](#), Aug 2020 - Dec 2021
- Visiting Student, Supervised by Prof. Xin Gao, [Computational Bioscience Research Center \(CBRC\)](#), [King Abdullah University of Science and Technology](#), Sep 2019 - Feb 2020
- **Bachelor of Science, B.S. (Honored) in Bioinformatics**, Supervised by Prof. [Wei Chen](#), [Southern University of Science and Technology](#), Sep 2016 - Jun 2020

Research Interest

- **Secure Bioinformatics and Privacy-Preserving Intelligent Healthcare**
 - Federated learning
 - Differential privacy
 - Homomorphic encryption
 - Attacking and defense
 - Blockchain
- **AI in Medical Imaging**
 - EEG
 - X-ray
 - CT
 - fMRI
- **Bioinformatics**
 - Analysis and integration of biological omics data with deep learning methods
 - Developing new bioinformatics tools
- Metaverse
 - Computer vision and VR
- Cognitive Neuroscience
 - Mechanism of Language, Emotion, Memory, and Dream
 - Brain-Computer Interface

Research and Publications

Selected Papers (# equal contribution, * corresponding author)

1. [Annotating TSSs in Multiple Cell Types Based on DNA Sequences and RNA-seq Data via DeeReCT-TSS](#).
Juexiao Zhou#, Bin Zhang#, Haoyang Li, Longxi Zhou, Zhongxiao Li, Yongkang Long, Wenkai Han, Mengran Wang, Huanhuan Cui, Wei Chen, Xin Gao*.
Genomics, Proteomics & Bioinformatics (IF: 6.615)
DOI: [10.1016/j.gpb.2022.11.010](#)
Access: [online](#), [pdf](#)
2. [Audit to Forget: A Unified Method to Revoke Patients’ Private Data in Intelligent Healthcare](#).
Juexiao Zhou#, Haoyang Li#, Xingyu Liao, Bin Zhang, Wenjia He, Zhongxiao Li, Longxi Zhou, Xin Gao*
under review.
Access: [arXiv](#)
3. [Personalized and privacy-preserving federated heterogeneous medical image analysis with PPPML-HMI](#).
Juexiao Zhou#, Longxi Zhou#, Di Wang, Xiaopeng Xu, Haoyang Li, Yuetan Chu, Wenkai Han, Xin Gao*
under review.
Access: [medRxiv](#)
4. [PPML-Omics: a Privacy-Preserving federated Machine Learning system protects patients’ privacy from omic data](#).
Juexiao Zhou#, Siyuan Chen#, Yulian Wu#, Haoyang Li, Bin Zhang, Longxi Zhou, Yan Hu, Zihang Xiang, Zhongxiao Li, Ningning Chen, Wenkai Han, Di Wang and Xin Gao*.
under review.
Access: [bioRxiv](#)
5. [A comprehensive benchmarking with practical guidelines for cellular deconvolution of spatial transcriptomics](#).
Haoyang Li#, **Juexiao Zhou#**, Zhongxiao Li, Siyuan Chen, Xingyu Liao, Bin Zhang, Ruochi Zhang, Yu Wang, Shiwei Sun, Xin Gao*
Nature Communications (IF: 14.919)
DOI: [10.1038/s41467-023-37168-7](#)
Access: [online](#), [pdf](#)
6. [An Interpretable Deep Learning Workflow for Discovering Sub-Visual Abnormalities in CT Scans of COVID-19 Inpatients and Survivors](#).
Longxi Zhou#, Xianglin Meng#, Yuxin Huang#, Kai Kang#, **Juexiao Zhou**, Yuetan Chu, Haoyang Li, Dexuan Xie, Jiannan Zhang, Weizhen Yang, Na Bai, Yi Zhao, Mingyan Zhao, Guohua Wang, Lawrence Carin, Xigang Xiao, Kaijiang Yu, Zhaowen Qiu, Xin Gao*.
Nature machine intelligence (IF: 25.9)
DOI: [10.1038/s42256-022-00483-7](#)
Access: [online](#), [pdf](#)
7. [Accurate transcriptome-wide identification and quantification of alternative polyadenylation from RNA-seq data with APAIQ](#).
Yongkang Long#, Bin Zhang#, Shuye Tian, Jiajia Chan, **Juexiao Zhou**, Zhongxiao Li, Huawen Zhong, Elva Gao, Ruochi Zhang, Yu Wang, Shiwei Sun, Ying Xu, Yvonne Tay, Wei Chen*, Xin Gao*
Genome Research (IF: 9.438)
In press.
8. [Predicting the antigenic evolution of SARS-COV-2 with deep learning](#).
Wenkai Han#, NingNing Chen#, Xinzhou Xu, Adil Salhi, **Juexiao Zhou**, Zhongxiao Li, Huawen Zhong, Elva Gao, Ruochi Zhang, Yu Wang, Shiwei Sun, Peter Cheung, Xin Gao*
Nature Communications (IF: 14.919)
In press.

For complete publication list [@here](#)

Working Experience

- Student Ambassador, CEMSE, [King Abdullah University of Science and Technology](#), Dec 2021 - Present

Teaching Experience

- CS220, Data Analytics, Fall 2022/2023, KAUST
 - Cooperated with Prof. Xin Gao
 - Position: Teaching Assistant
- BioE 201/230 Foundations of Bioengineering, Fall 2022/2023, KAUST
 - Cooperated with Prof. Xin Gao
 - Position: Teaching Labs, Building 9 Room 4225
 - Contents:
 - Lab 1. Genome data analysis, 2022.08.30, [colab](#)
 - Python basics
 - D/RNA sequence analysis
 - Biopython
 - BLAST
 - Reference genome
 - Lab 2. Protein sequence analysis, 2022.09.06, [colab](#)
 - Protein sequence analysis
 - MSA
 - PDB
 - PyMOL
 - Secondary structure prediction
 - Lab 3. Proetin structure and function, 2022.09.13, [colab](#)
 - Ab initio with PyRosetta
 - AlphaFold2
 - NucleicNet
 - Docking with Smina
 - Pfam annotation with deep learning
- CS398 Graduate Seminar, Spring 2022, KAUST
 - Cooperated with Prof. Dominik Michels
 - Position: Teaching Assistant

Honours

King Abdullah University of Science and Technology

KAUST, 2021-Present

PhD, Computer Science

GPA: 4.00 / 4.00

- KAUST All's NeuIPS travel grant, 2022
- CEMSE Dean's List Award, 2022
- Excellent Research Award, CEMSE, 2021

King Abdullah University of Science and Technology

KAUST, 2020-2021

Master of Science, Computer Science

GPA: 3.95 / 4.00

- Student ambassador, CEMSE, 2021
- Yearly best student award, CEMSE, 2021
- Full scholarship for MS/PhD study, 2020

Southern University of Science and Technology

SUSTech, 2016-2020

Bachelor of Science, Bioinformatics, Biology

GPA: 3.92 / 4.00 (Top 0.1%), Core GPA: 3.94/4.00

- Outstanding graduate of SUSTech, 2020.
- Cum Laude Graduate of the Department of Biology (Top 1/10), 2020.
- The Guinness world record for "the most vows received by a single civilized act activity", 2019
- Candidate for 2019 National Scholarship, 2019
- Summer social practice excellent experience Award, 2018
- Excellent Student, The First Prize Scholarship, 2018
- Outstanding volunteer for the 12th CBIS Biennial Meeting, Shenzhen, China, 2018
- Candidate for 2018 National Scholarship, 2018
- Outstanding Volunteer of the 3rd Shenzhen International Life Science & Health Industry Summit (2016) Excellent Student, The First Prize Scholarship, 2017
- Dean scholarship, The First Prize Scholarship, 2017
- Excellent Student Cadre, 2017
- Outstanding Volunteer of 2017 Shenzhen International Precision Medicine Summit, 2017
- Alma mater practice excellent team, 2017
- National Literary Creation Award, 2016
- Excellent Student, The Second Prize Scholarship, 2016.

Memberships

- Chinese Association for Artificial Intelligence (CAAI) Member
- The international Asia-Pacific Bioinformatics Network (APBioNET) Member

Talks

- Audit to Forget: A Unified Method to Revoke Patients’ Private Data in Intelligent Healthcare.
 - Poster. CBRC session, [KAUST Research Open Week](#), Saudi Arabia, March 2, 2023
- Audit to Forget: A Unified Method to Revoke Patients’ Private Data in Intelligent Healthcare.
 - Oral & Poster. Spotlight, [Rising Stars in AI Symposium 2023 at KAUST](#), Saudi Arabia, Feb 2, 2023
- Privacy in Bioinformatics and Intelligent Healthcare.
 - Poster. Smart-Health Student Research Symposium, KAUST, Saudi Arabia, November-10, 2022.
- PPML-Omics: a Privacy-Preserving federated Machine Learning system protects patients’ privacy from omic data
 - Oral. CBRC Dual Seminar, King Abdullah University of Science and Technology, Saudi Arabia, March 29, 2022
- PPML-Omics: a Privacy-Preserving federated Machine Learning system protects patients’ privacy from omic data
 - Oral. BDAI重点实验室研究生沙龙第19期, 中国人民大学高瓴人工智能学院, 中国北京, March 9, 2022

Academic Services

Reviewer

Journal/Conference	# Paper Reviewed
Genome Biology	1
Genome Research	2
Heliyon	1
IJCAI-ECAI 2022	1
ICONIP2020	1
ICMLA2021	1
Journal of Bioinformatics and Computational Biology	1
MICCAI2020	1
Multimedia Systems	1
SIGKDD2022	2

Conference Administrator

- The 21st International Conference on Bioinformatics (InCoB2022), Administrator, [certificate](#)