

Juexiao Zhou

@ juexiao.zhou@kaust.edu.sa |  LinkedIn |  Google Scholar |  Portfolio |  KAUST, Saudi Arabia

RESEARCH INTERESTS

I am interested in several research areas, including machine learning, deep learning, privacy, security, bioinformatics, and intelligent healthcare. My primary research focuses on secure bioinformatics and privacy-preserving intelligent healthcare. I am also interested in exploring the application of AI in medical imaging and bioinformatics.

ACADEMIC EXPERIENCES

King Abdullah University of Science and Technology

Saudi Arabia

PhD Student in Computer Science, Supervised by Prof. Xin Gao; GPA: 4.00/4.00

Dec 2021 – Present

Master of Science, M.S. in Computer Science, Supervised by Prof. Xin Gao; GPA: 3.95/4.00

Aug 2020 – Dec 2021

Southern University of Science and Technology

Shenzhen, China

Bachelor of Science, B.S. (Honored) in Bioinformatics; GPA: 3.92/4.00

Sep 2016 – Jun 2020

PUBLICATIONS

Journal

(# equal contribution, * corresponding author)

[1] Haoyang Li[#], **Juexiao Zhou**[#], Zhongxiao Li, Siyuan Chen, Xingyu Liao, Bin Zhang, Ruochi Zhang, Yu Wang, Shiwei Sun, Xin Gao*. A comprehensive benchmarking with practical guidelines for cellular deconvolution of spatial transcriptomic. *Nature Communications (IF: 14.919)*. DOI: 10.1038/s41467-023-37168-7

[2] Yongkang Long[#], Bin Zhang[#], Shuye Tian, Jiajia Chan, **Juexiao Zhou**, Zhongxiao Li, Yisheng Li, Zheng An, Xingyu Liao, Yu Wang, Shiwei Sun, Ying Xu, Yvonne Tay, Wei Chen*, Xin Gao*. Accurate transcriptome-wide identification and quantification of alternative polyadenylation from RNA-seq data with APAIQ. *Genome Research (IF: 9.438)*. In press.

[3] Xiaopeng Xu, Tiantian Xu, **Juexiao Zhou**, Xingyu Liao, Ruochi Zhang, Yu Wang, Lu Zhang, Xin Gao*. AB-Gen: Antibody Library Design with Generative Pre-trained Transformer and Deep Reinforcement Learning. *Genomics, Proteomics & Bioinformatics (IF: 6.615)*. In press.

[4] 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*. Predicting the antigenic evolution of SARS-COV-2 with deep learning. *Nature Communications (IF: 14.919)*. In press.

[5] Zhongxiao Li[#], Elva Gao[#], **Juexiao Zhou**, Wenkai Han, Xiaopeng Xu, and Xin Gao*. Applications of Deep Learning in Understanding Gene Regulation. *Cell Reports Methods*. DOI: 10.1016/j.crmeth.2022.100384

[6] **Juexiao Zhou**[#], Bin Zhang[#], Haoyang Li, Longxi Zhou, Zhongxiao Li, Yongkang Long, Wenkai Han, Mengran Wang, Huanhuan Cui, Wei Chen, Xin Gao*. Annotating TSSs in Multiple Cell Types Based on DNA Sequences and RNA-seq Data via DeeReCT-TSS. *Genomics, Proteomics & Bioinformatics (IF: 6.615)*. DOI: 10.1016/j.gpb.2022.11.010

[7] Haoyang Li, Hanmin Li, **Juexiao Zhou** and Xin Gao*. SD2: Spatially resolved transcriptomics deconvolution through integration of spatial and dropout information. *Bioinformatics (IF: 6.931)*. DOI: 10.1093/bioinformatics/btac605

[8] 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*. An Interpretable Deep Learning Workflow for Discovering Sub-Visual Abnormalities in CT Scans of COVID-19 Inpatients and Survivors. *Nature machine intelligence (IF: 25.9)*. DOI: 10.1038/s42256-022-00483-7

- [9] Haoyang Li, **Juexiao Zhou**, Yi Zhou, Jieyu Chen, Feng Gao, Ying Xu, Xin Gao*. An interpretable computer-aided diagnosis method for periodontitis from panoramic radiographs. *Frontiers in Physiology, section Computational Physiology and Medicine (IF: 4.755)*. DOI: 10.3389/fphys.2021.655556.
- [10] Zhongxiao Li, Yisheng Li, Bin Zhang, Yu Li, Yongkang Long, **Juexiao Zhou**, Xudong Zou, Min Zhang, Yuhui Hu, Wei Chen, Xin Gao*. DeeReCT-APA: Prediction of Alternative Polyadenylation Site Usage through Deep Learning. *Genomics Proteomics and Bioinformatics (IF: 6.615)*. DOI: 10.1016/j.gpb.2020.05.004.
- [11] Haoyang Li, **Juexiao Zhou**, Huiyan Sun, Zhaowen Qiu, Xin Gao* and Ying Xu*. CaMeRe: A novel tool for inference of cancer metabolic reprogramming. *Front. Oncol., 2020 (IF: 6.244)*. DOI: 10.3389/fonc.2020.00207.
- [12] Yisheng Li[#], Bernhard Schaefer[#], Xudong Zou, Min Zhang, Florian Heyd, Wei Sun, Bin Zhang, Guipeng Li, Weizheng Liang, Yuhao He, **Juexiao Zhou**, Yunfei Li, Liang Fang, Yuhui Hu*. Pan-tissue analysis of allelic alternative polyadenylation suggests widespread functional regulation. *Molecular Systems Biology, 2020 (IF: 12.744)*. DOI: 10.15252/msb.20199367.
- [13] Longxi Zhou, Zhongxiao Li, **Juexiao Zhou**, Haoyang Li, Yupeng Chen, Yuxin Huang, Dexuan Xie, Lintao Zhao, Ming Fan, Shahrukh Hashmi, Faisal AbdelKareem, Riham Eiada, Xigang Xiao, Lihua Li, Zhaowen Qiu, and Xin Gao*. A Rapid, Accurate and Machine-agnostic Segmentation and Quantification Method for CT-based COVID-19 Diagnosis. *Transactions on Medical Imaging, 2020 (IF: 11.037)*. DOI: 10.1109/TMI.2020.3001810.

Conference

([#] equal contribution, * corresponding author)

- [14] Haoyang Li, **Juexiao Zhou**, Yi Zhou, Jieyu Chen, Feng Gao, Ying Xu, Xin Gao*. Automatic and interpretable model for periodontitis diagnosis in panoramic radiographs. Medical Image Computing and Computer Assisted Interventions 2020. DOI: 10.1007/978-3-030-59713-9_44.

Posters & Technical Reports

([#] equal contribution, * corresponding author)

- [15] **Juexiao Zhou**, Xin Gao*. Privacy in Bioinformatics and Intelligent Healthcare. Poster. Smart-Health Student Research Symposium, KAUST, Saudi Arabia, November 10, 2022.
- [16] Haoyang Li, **Juexiao Zhou**, Xin Gao*. Deetal-Perio: DEEP denTAL Advisor for Periodontitis Diagnosis based on Two-step Segmentation of Teeth and Gingiva with Lower-dimensional Features. Poster. DigitalHealth, KAUST, 2020.
- [17] Haoyang Li, **Juexiao Zhou**, Huiyan Sun, Zhaowen Qiu, Xin Gao* and Ying Xu*. CaMeRe: A novel tool for inference of cancer metabolic reprogramming. Poster. Advance In Artificial Intelligence, KAUST, 2019.
- [18] Yongkang Long, **Juexiao Zhou**, Zhongxiao Li, Wei Chen, Xin Gao*. DeeRect-PAS—A Deep-Learning based method for Transcriptome-wide PAS Identification. Poster. Advance In Artificial Intelligence, KAUST, 2019.
- [19] Min Zhang, Yisheng Li, **Juexiao Zhou**, Yuhao He, Guipeng Li, Liang Fang, Wei Chen*. Systematical discovery of cis-elements regulating alternative polyadenylation in mammalian cells. Poster. RNA Biology, CSH Asia, 2019.
- [20] Min Zhang, Yisheng Li, **Juexiao Zhou**, Yuhao He, Guipeng Li, Liang Fang, Wei Chen*. Systematical discovery of cis-elements regulating alternative polyadenylation in mammalian cells. Poster. Regulatory RNAs, Cell Symposia, Berlin, Germany, May 12-14, 2019.

Pre-Prints

([#] equal contribution, * corresponding author)

- [21] Xingyu Liao, Wufei Zhu, **Juexiao Zhou**, Haoyang Li, Xiaopeng Xu, Bin Zhang, Xin Gao*. Repetitive DNA sequence detection and its role in the human genome. under review.
- [22] **Juexiao Zhou**[#], Haoyang Li[#], Xingyu Liao, Bin Zhang, Wenjia He, Zhongxiao Li, Longxi Zhou, Xin Gao*. Audit to Forget: A Unified Method to Revoke Patients' Private Data in Intelligent Healthcare. under review.
- [23] Xiaopeng Xu, **Juexiao Zhou**, Chen Zhu, Qing Zhan, Zhongxiao Li, Ruochi Zhang, Xingyu Liao, Xin Gao*. GPT generates more diverse scaffolds than GRU in exploring the chemical space. under review.
- [24] Yuetan Chu[#], Longxi Zhou[#], **Juexiao Zhou**, Yuxin Huang, Tianyi Xing, Dexuan Xie, Xigang Xiao, Zhaowen Qiu, Xin Gao*. An end-to-end workflow for robust pulmonary artery-vein segmentation on thick-slice chest CT. under review.

- [25] **Juexiao Zhou**[#], Longxi Zhou[#], Di Wang, Xiaopeng Xu, Haoyang Li, Yuetan Chu, Wenkai Han, Xin Gao*. Personalized and privacy-preserving federated heterogeneous medical image analysis with PPPML-HMI. under review.
- [26] **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*. PPML-Omics: a Privacy-Preserving federated Machine Learning system protects patients' privacy from omic data. under review.
- [27] Longxi Zhou, Yitong Ding, Jiayang Guo, Ming Fan, **Juexiao Zhou**, Haoyang Li, Yujiao Li, Yuxin Huang, Yi Zhao, Yuetan Chu, Kun Wang, Qiming Fang, Xin Gao, Hongxia Zhang, Lihua Li. A Workflow for Automatic, Accurate and Robust Breast Tumor Segmentation on Multi-Database DCE-MRI. under review.

WORK EXPERIENCE

King Abdullah University of Science and Technology

Student Ambassador, CEMSE

Saudi Arabia

Dec 2021 – Present

TEACHING

CS220, Data Analytics

Teaching Assistant

KAUST

Fall 2022/2023

- Cooperated with Prof. Xin Gao

BioE 201/230 Foundations of Bioengineering

Teaching Labs

Building 9 Room 4225, KAUST

Fall 2022/2023

- Cooperated with Prof. Xin Gao
- Lab 1. Genome data analysis, 2022.08.30, Content: Python basics, D/RNA sequence analysis, Biopython, BLAST, Reference genome
- Lab 2. Protein sequence analysis, 2022.09.06, Content: Protein sequence analysis, MSA, PDB, PyMOL, Secondary structure prediction
- Lab 3. Protein structure and function, 2022.09.13, Content: Ab initio with PyRosetta, AlphaFold2, NucleicNet, Docking with Smina, Pfam annotation with deep learning

CS398 Graduate Seminar

Teaching Assistant

KAUST

Spring 2022

- Cooperated with Prof. Dominik Michels

HONORS & AWARDS

King Abdullah University of Science and Technology, KAUST, 2021-Present, PhD, Computer Science

- KAUST AII's NeurIPS 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

- 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

- 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, Beijing, China March 9, 2022

ACADEMIC SERVICES

Reviewer

(*Journal/Conference Name, number of reviews*)

- 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