

Xiaojie Qiu

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DATE UPDATED	February 12, 2024	
GOOGLE SCHOLAR (2024-02-12)	Citations: 10225 h-index: 20 i10-index: 25	
RESEARCH INTERESTS	Predictive modeling of mammalian cell fate transitions over time and space with single-cell genomics	
RESEARCH INTERESTS	Assistant Professor Department of Genetics, and Computer Science (courtesy) BASE Research Initiative Betty Irene Moore Children's Heart Center Stanford University	Dec 2023 – current
PHD	University of Washington MOLECULAR AND CELLULAR BIOLOGY (MCB) PROGRAM DEGREE CONFERRED ON JUNE 8, 2018	Aug 2013 – Jun 2018
MASTERS	East China Normal University BIOINFORMATICS	Aug 2009 – Jun 2012
BA	Changchun University of Technology BIOENGINEERING	Aug 2004 – Jun 2008
RESEARCH EXPERIENCE	Whitehead institute & MIT , Post-doc (Relocated with the lab) University of California, San Francisco , Post-doc University of Washington , Graduate student Institute for Systems Biology , Research assistant East China Normal University , Master student	July 2020 – Dec 2023 Oct 2018 – July 2020 Aug 2013 – July 2018 Jan 2012 – Sep 2013 Sep 2009 – Jun 2012
ACTIVE FUNDING	MorPhiC Data Analysis and Validation Center , U01 HG013176 09/01/2023 - 06/30/2028 co-PI with Drs. Jesse Engreitiz (PI), Anshul Kundaje K99 grant , 1K99HG012887-01, Impact Score: 14 PI: Xiaojie Qiu CZI Essential Open Source Software for Science Program PIs: Xiaojie Qiu, Jonathan Weissman Longvity Impertus Grant PIs: Xiaojie Qiu, Jonathan Weissman	02/01/23-01/31/25 11/01/22-10/31/24 07/01/22-07/01/24
PAST FUNDING	Jameel Clinic Fund PIs: Xiaojie Qiu, Jonathan Weissman	06/01/21-05/31/22
HONORS AND AWARDS	Arc Ignite Award The Hope Funds for Cancer Research (finalist) China Scholarship Council Award (First prize)	2023 2020 2017

- KEY PREPRINTS [1] **Xiaojie Qiu**^{*,†}, Daniel Y. Zhu*, Jiajun Yao*, Zehua Jing*, Lulu Zuo*, Mingyue Wang*, Kyung Hoi (Joseph) Min, Hailin Pan, Shuai Wang, Sha Liao, Yiwei Lai, Shijie Hao, Yuancheng Ryan Lu, Matthew Hill, Jorge D. Martin-Rufino, Chen Weng, Anna Maria Riera-Escandel, Mengnan Chen, Liang Wu, Yong Zhang, Xiaoyu Wei, Mei Li, Xin Huang, Rong Xiang, Zhuoxuan Yang, Chao Liu, Tianyi Xia, Yingxin Liang, Junqiang Xu, Qinan Hu, Yuhui Hu, Hongmei Zhu, Yuxiang Li, Ao Chen, Miguel A. Esteban, Ying Gu, Douglas A. Lauffenburger, Xun Xu, Longqi Liu[†], Jonathan S. Weissman[†], Shiping Liu[†], Yinqi Bai[†]. Spateo: multidimensional spatiotemporal modeling of single-cell spatial transcriptomics. **Biorxiv**, **2022**. DOI: <https://doi.org/10.1101/2022.09.27.509606>
- KEY ORIGINAL JOURNAL PUBLICATIONS [2] Ao Chen*, Sha Liao*, Mengnan Cheng*, Kailong Ma*, Liang Wu*, Yiwei Lai*, **Xiaojie Qiu***, et. al. Spatiotemporal transcriptomic atlas of mouse organogenesis using DNA nanoball patterned arrays. **Cell**, **cover story** of issue May 17, **2022**. doi: [10.1101/2021.01.17.427004](https://doi.org/10.1101/2021.01.17.427004)
- [3] **Xiaojie Qiu**[†], Yan Zhang*, et. al Mapping Transcriptomic Vector Field of Single Cells. **Cell** **2022**. doi:doi.org/10.1016/j.cell.2021.12.045
- [4] **Xiaojie Qiu***, Arman Rahimzamani*, et. al Inferring causal gene regulatory networks from coupled single-cell expression dynamics using Scribe. **Cell systems** 10 (3), 265-274. e11. **2020**. doi: [10.1016/j.cels.2020.02.003](https://doi.org/10.1016/j.cels.2020.02.003)
- [5] **Xiaojie Qiu***, et. al. “Reversed graph embedding resolves complex single-cell trajectories.” **Nature methods** 14, 979–982, **2017**. doi:[10.1038/nmeth.4402](https://doi.org/10.1038/nmeth.4402)
- [6] **Xiaojie Qiu***, et. al. Single-cell mRNA quantification and differential analysis with Census., **Nature methods** 14 (3), 309-315, **2017**. doi:[10.1038/nmeth.4150](https://doi.org/10.1038/nmeth.4150)
- [7] **Xiaojie Qiu***, Shanshan Ding*, Tieliu Shi[†]. From understanding the development landscape of the canonical fate-switch pair to constructing a dynamic landscape for two-step neural differentiation. **PLoS one** 7 (12), e49271, **2012**. doi:[10.1371/pone.0049271](https://doi.org/10.1371/pone.0049271)
- OTHER PUBLICATIONS [8] Xiaoyu Wei*, Sulei Fu*, Hanbo Li[†], Yang Liu*, Shuai Wang*, Weimin Feng*, Yunzhi Yang*, Xiawei Liu, Yan-Yun Zeng, Mengnan Cheng, Yiwei Lai, **Xiaojie Qiu**[†], Liang Wu, Nannan Zhang, Yujia Jiang, Jiangshan Xu, Xiaoshan Su, Cheng Peng, Lei Han, Wilson Pak-Kin Lou, Chuanyu Liu, Yue Yuan, Kailong Ma, Tao Yang, Xiangyu Pan, Shang Gao, Ao Chen, Miguel A Esteban, Huanming Yang, Jian Wang, Guangyi Fan, Longqi Liu, Liang Chen[†], Xun Xu[†], Ji-Feng Fei[†], Ying Gu[†]. Single-cell Stereo-seq reveals induced progenitor cells involved in axolotl brain regeneration. **Science**, **2022**. DOI: [10.1126/science.abp9444](https://doi.org/10.1126/science.abp9444)
- [9] Anika Gupta*, Jorge D Martin-Rufino*, Thouis R Jones, Vidya Subramanian, **Xiaojie Qiu**[†], Emmanuelle I Grody, Alex Bloemendal, Chen Weng, Sheng-Yong Niu, Kyung Hoi Min, Arnav Mehta, Kaite Zhang, Layla Siraj, Aziz Al’Khafaji, Vijay G Sankaran, Soumya Raychaudhuri, Brian Cleary, Sharon Grossman, Eric S Lander[†]. Inferring gene regulation from stochastic transcriptional variation across single cells at steady state. **PNAS**, **2022**. <https://doi.org/10.1073/pnas.2207392119>
- [10] Dian Yang*, Matthew G Jones*, Santiago Naranjo, William M Rideout III, Kyung Hoi Joseph Min, Raymond Ho, Wei Wu, Joseph M Replogle, Jennifer L Page, Jeffrey J Quinn, Felix Horns, **Xiaojie Qiu**[†], Michael Z Chen, William A Freed-Pastor, Christopher S McGinnis, David M Patterson, Zev J Gartner, Eric D Chow, Trever G Bivona, Michelle M Chan, Nir Yosef[†], Tyler Jacks[†], Jonathan S Weissman[†]. Lineage tracing reveals the phylogenetics, plasticity, and paths of tumor evolution. **Cell**, **2022**. doi: <https://doi.org/10.1016/j.cell.2022.04.015>
- [11] José L McFaline-Figueroa*, Andrew J Hill*, **Xiaojie Qiu**[†], Dana Jackson, Jay Shendure, Cole Trapnell[†]. A pooled single-cell genetic screen identifies regulatory checkpoints in the continuum of the epithelial-to-mesenchymal transition. **Nature genetics** 51 (9), 1389-1398. **2020**. doi: [10.1038/s41588-019-0489-5](https://doi.org/10.1038/s41588-019-0489-5)
- [12] Lauren M Saunders*, Abhishek K Mishra, Andrew J Aman, Victor M Lewis, Matthew B Toomey, Jonathan S Packer, **Xiaojie Qiu**[†], Jose L McFaline-Figueroa, Joseph C Corbo, Cole Trapnell[†], David M Parichy[†]. Thyroid hormone regulates distinct paths to maturation in pigment cell lineages. **Elife** 8, e45181. **2019**. doi: [10.7554/eLife.45181](https://doi.org/10.7554/eLife.45181)

*Equal contribution

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- [13] Junyue Cao*, Malte Spielmann*, **Xiaojie Qiu**[‡], Xingfan Huang, Daniel M Ibrahim, Andrew J Hill, Fan Zhang, Stefan Mundlos, Lena Christiansen, Frank J Steemers, Cole Trapnell[†], Jay Shendure[†]. The single-cell transcriptional landscape of mammalian organogenesis. **Nature** 566 (7745), 496-502. **2019**. doi: 10.1038/s41586-019-0969-x
- [14] Davide Cacchiarelli*[†], **Xiaojie Qiu**[‡], Sanjay Srivatsan, Anna Manfredi, Michael Ziller, Eliah Overbey, Antonio Grimaldi, Jonna Grimsby, Prapti Pokharel, Kenneth J Livak, Shuqiang Li, Alexander Meissner, Tarjei S Mikkelsen, John L Rinn, Cole Trapnell[†]. Aligning single-cell developmental and reprogramming trajectories identifies molecular determinants of myogenic reprogramming outcome. **Cell systems** **2019**. 7 (3), 258-268. e3. Doi: 10.1016/j.cels.2018.07.006
- [15] Hannah A Pliner*, Jonathan S Packer, José L McFaline-Figueroa, Darren A Cusanovich, Riza M Daza, Delasa Aghamirzaie, Sanjay Srivatsan, **Xiaojie Qiu**[‡], Dana Jackson, Anna Minkina, Andrew C Adey, Frank J Steemers, Jay Shendure[†], Cole Trapnell[†]. Cicero predicts cis-regulatory DNA interactions from single-cell chromatin accessibility data. **Molecular cell** 71 (5), 858-871. e8 172. **2018**. doi: 10.1016/j.molcel.2018.06.044
- [16] Darren A Cusanovich*, James P Reddington, David A Garfield, Riza M Daza, Delasa Aghamirzaie, Raquel Marco-Ferreres, Hannah A Pliner, Lena Christiansen, **Xiaojie Qiu**[‡], Frank J Steemers, Cole Trapnell, Jay Shendure[†], Eileen EM Furlong[†]. The cis-regulatory dynamics of embryonic development at single-cell resolution. **Nature** 555 (7697), 538-542 **2018**. doi: 10.1038/nature25981.
- [17] Qi Qiu*, Peng Hu*, **Xiaojie Qiu**[‡], Kiya W Govek, Pablo G Cámara, Hao Wu[†]. Massively parallel and time-resolved RNA sequencing in single cells with scNT-seq. **Nature methods**, 17 (10), 991-1001. **2020**. doi: 10.1038/s41592-020-0935-4
- [18] Junyue Cao*, Malte Spielmann*, **Xiaojie Qiu**[‡], Xingfan Huang, Daniel M Ibrahim, Andrew J Hill, Fan Zhang, Stefan Mundlos, Lena Christiansen, Frank J Steemers, Cole Trapnell[†], Jay Shendure[†]. Comprehensive single-cell transcriptional profiling of a multicellular organism. **Science** 357.6352: 661-667, **2017**. doi:10.1126/science.aam8940.
- [19] Naresh K Hanchate*, Kunio Kondoh, Zhonghua Lu, Donghui Kuang, Xiaolan Ye, **Xiaojie Qiu**[‡], Lior Pachter, Cole Trapnell[†], Linda B Buck[†]. Single-cell transcriptomics reveals receptor transformations during olfactory neurogenesis. **Science** 350 (6265), 1251-1255, **2015**. doi:10.1126/science.aad2456
- [20] Jigang Wang*, **Xiaojie Qiu**[‡], Yuhua Li, Youping Deng, Tielu Shi[†]. A transcriptional dynamic network during Arabidopsis thaliana pollen development.” **BMC systems biology** 5 (3), S8, **2011**. doi.org/10.1186/1752-0509-5-S3-S8
- [21] Bing He, **Xiaojie Qiu**[‡], Peng Li, Lishan Wang, Qi Lv, Tielu Shi[†]. HCCNet: An integrated network database of hepatocellular carcinoma. **Cell research** 20 (6), 732, **2010**. doi:10.1038/cr.2010.67
- BOOK CHAPTERS [22] Joseph Xu Zhou, **Xiaojie Qiu**[‡], Aymeric Fouquier d’Herouel, Sui Huang JX Zhou. Discrete Gene Network Models for Understanding Multicellularity and Cell Reprogramming: From Network Structure to Attractor Landscape. in **Computational Systems Biology**, 2nd ed., Elsevier Inc. **2013**.
[‡] Performed derivations, generated figures and wrote the text.
- SOFTWARE PRODUCTS [23] **Xiaojie Qiu**, Joseph Min, Jiajun Yao, Daniel Zhu, Zehua Jing, Lulu Zuo, Hailin Pan, Shuai Wang, Xuanxuan Zuo, Liaoxiao Yan, Xiang Rong, Longqi Liu, Shiping Liu, Jonathan Weissman, Yinqi Bai. **Spateo**. <https://github.com/aristoteleo/spateo-release>. **2022**.
- [24] Joseph Min, **Xiaojie Qiu**. **Dynast**. <https://github.com/aristoteleo/dynast-release>. **2020**.
- [25] **Xiaojie Qiu**, Yan Zhang. **Dynamo**. <https://github.com/aristoteleo/dynamo-release>. **2019**.
- [26] Cole Trapnell, David Cacchiarelli, **Xiaojie Qiu**. **Monocle 2/3**. <http://cole-trapnell-lab.github.io/monocle-release/>. **2017**.
- PROFESSIONAL SERVICE Principal developer and maintainer for a few open-source software that are widely used by the single-cell genomics community across the globe.
Referee for **Cell**, **Science**, **Nature Biotechnology**, **Nature Methods**, **Nature Communication** and **Bioinformatics**

OUTREACH AND
TEACHING

Science Education Partnership, FRED HUTCHISON CANCER RESEARCH CENTER **Fall 2016**
Tutor. Trained middle school teachers in molecular biology techniques and how to apply them in laboratory research.

STEMPREP Program, UNIVERSITY OF WASHINGTON **Summer 2017**
Tutor. The STEMPREP program aims to assist in producing the next generation of minority researchers in Science, Technology, Engineering, Math and Medicine (STEMM).