

## Siyuan (Steven) Wang, Ph.D.

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### ACADEMIC APPOINTMENTS

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Associate Professor of Genetics and Cell Biology Yale School of Medicine, <b>Yale University</b>	2023-present
Assistant Professor of Genetics and Cell Biology Yale School of Medicine, <b>Yale University</b>	2017-2023
Postdoctoral Fellow with Prof. Xiaowei Zhuang Department of Chemistry and Chemical Biology, <b>Harvard University</b>	2011-2017

### EDUCATION

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<b>Princeton University</b> , Princeton, NJ Ph.D. in Molecular Biology Advisors: Prof. Ned S. Wingreen and Prof. Joshua W. Shaevitz	2007-2011
<b>Peking University</b> , Beijing, China B.S. in Physics Advisor: Prof. Qi Ouyang	2003-2007

### AWARDS AND HONORS

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|---|-----------|
| ◆ Biophysical Society Early Career Award in Physical Cell Biology       | 2023      |
| ◆ Pershing Square Sohn Prize for Young Investigators in Cancer Research | 2022-2025 |
| ◆ NIH Cellular Senescence Network UG3 Award                             | 2021-2023 |
| ◆ NIH 4D Nucleome Program U01 Award                                     | 2020-2025 |
| ◆ NHGRI R01 Award   | 2020-2024 |
| ◆ NCI R33 Award   | 2020-2023 |
| ◆ NIH Director's New Innovator Award                                    | 2019-2024 |

- ◆ MIT Technology Review 35 Innovators Under 35 of China 2018
- ◆ Harvard Chinese Life Sciences Distinguished Research Award 2017
- ◆ International Union of Pure and Applied Physics Young Scientist Prize in Biological Physics (1 recipient per year worldwide) 2016
- ◆ Jane Coffin Childs Fellowship (27 recipients per year in the US) 2012-2015
- ◆ Award for Outstanding Doctoral Thesis Research in Biological Physics, American Physical Society (1-2 recipients per year worldwide) 2011
- ◆ Travel Grant, Annual *q-bio* Summer School on Cellular Information Processing, Los Alamos National Laboratory 2008
- ◆ Top Ten Academic Stars Award, Peking University (highest undergraduate academic honor) 2007
- ◆ First Prize in Outstanding Research Awards, School of Physics, Peking University (2 out of 199) 2006
- ◆ *Chun-Tsung* Scholar, Peking University (top undergraduate research fund) 2006
- ◆ *Benz* Fellowship, Peking University (48 out of about 14,000) 2003 - 2007

## PUBLICATIONS

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\*Co-first authors. #Co-corresponding authors.

### A. Spatial omics and related imaging technology development

1. Mengwei Hu, Bing Yang, Tyler B. Jensen, Jonathan S.D. Radda, Yubao Cheng, Shengyan Jin, Siyuan Wang, High-content image-based CRISPR screening reveals regulators of 3D genome architectures, *bioRxiv*, doi: <https://doi.org/10.1101/2023.01.31.525983>, (2023).
2. Leon Tejwani\*, Neal G. Ravindra\*, Yubao Cheng\*, Changwoo Lee, Billy Nguyen, Shupeizhang, Logan M. Morrison, John Gionco, Yangfei Xiang, Kimberly Luttik, Jennifer Yoon, Hannah Ro, Fatema Haidery, Kristen Kim, Luhan Ni, Harry T. Orr, Laura P.W. Ranum, Vikram G. Shakkottai, Phyllis L. Faust, Siyuan Wang#, David van Dijk#, Janghoo Lim#, Longitudinal single-cell transcriptional dynamics throughout neurodegeneration in SCA1, manuscript under review at *Neuron*.
3. Benjamin Patterson\*, Bing Yang\*, Yoshiaki Tanaka, Kun-Yong Kim, Bilal Cakir, Yangfei Xiang, Siyuan Wang#, and In-Hyun Park#, Female naïve human pluripotent stem cells carry X chromosomes with Xa-like and Xi-like folding conformations, *Science Advances*, in press.
4. Lauren Dickinson, Wenxin Yuan1, Chantal LeBlanc, Geoffrey Thomson, Siyuan Wang, Yannick

Jacob, Induction of T-DNA amplification by retrotransposon-derived sequences, manuscript under review at *Nature Plants*.

5. Andrew E. S. Barentine, Yu Lin, Edward M. Courvan, Phylcia Kidd, Miao Liu, Leonhard Balduf, Timy Phan, Felix Rivera-Molina, Michael R. Grace, Zach Marin, Mark Lessard, Juliana Rios Chen, Siyuan Wang, Karla M. Neugebauer, Joerg Bewersdorf, David Baddeley, An integrated platform for high-throughput nanoscopy, *Nature Biotechnology*, <https://doi.org/10.1038/s41587-023-01702-1>, (2023).  
*bioRxiv*, doi: <https://doi.org/10.1101/606954>, (2019).
6. Dennis May, Sangwon Yun, David Gonzalez, Sangbum Park, Yanbo Chen, Elizabeth Lathrop, Biao Cai, Tianchi Xin, Hongyu Zhao, Siyuan Wang, Lauren E. Gonzalez, Katie Cockburn, Valentina Greco, Live imaging reveals chromatin compaction transitions and dynamic transcriptional bursting during stem cell differentiation in vivo, *eLife*, <https://doi.org/10.7554/eLife.83444>, (2023).  
*bioRxiv*, doi: <https://doi.org/10.1101/2022.10.07.511316>, (2022).
7. SenNet Consortium, NIH SenNet Consortium to map senescent cells throughout the human lifespan to understand physiological health, *Nature Aging*, Volume 2, Pages 1090-1100, (2022).
8. Yubao Cheng, Siyuan Wang, New mechanism of chromatin compartmentalization by BRD2, *Trends in Genetics*, Volume 38, Issue 12, Pages 1197-1198, (2022).
9. Liana Boraas\*, Mengwei Hu\*, Lauren Thornton, Charles E. Vejnar, Gang Zhen, Antonio J. Giraldez, Christine Mayr, Siyuan Wang#, Stefania Nicoli#, Non-coding function for mRNAs in focal adhesion architecture and mechanotransduction, revised manuscript under review at *Nature*.  
*bioRxiv*, doi: <https://doi.org/10.1101/2021.10.04.463097>, (2021).
10. Yubao Cheng, Miao Liu, Mengwei Hu, Siyuan Wang, TAD-like single-cell domain structures exist on both active and inactive X chromosomes and persist under epigenetic perturbations, *Genome Biology*, Volume 22, Number 309, (2021).  
*bioRxiv*, doi: <https://doi.org/10.1101/2021.05.12.443887>, (2021).
11. Miao Liu, Bing Yang, Mengwei Hu, Jonathan S.D. Radda, Yanbo Chen, Shengyan Jin, Yubao Cheng, Siyuan Wang, Chromatin tracing and multiplexed imaging of nucleosome architectures (MINA) and RNAs in single mammalian cells and tissue, *Nature Protocols*, Volume 16, Pages 2667-2697, (2021).
12. Yanfang Lu, Miao Liu, Jennifer Yang, Sherman M. Weissman, Xinghua Pan, Samuel G. Katz, Siyuan Wang, Spatial transcriptome profiling by MERFISH reveals fetal liver hematopoietic stem cell niche architecture, *Cell Discovery*, Volume 7, Number 47, (2021).  
Featured by *Genetic Engineering & Biotechnology News (GEN)*.
13. Mengwei Hu, Bing Yang, Yubao Cheng, Jonathan S.D. Radda, Yanbo Chen, Miao Liu, Siyuan Wang,

ProbeDealer is a convenient tool for designing probes for highly multiplexed fluorescence in situ hybridization, *Scientific Reports*, Volume 10, Number 22031, (2020).

14. Mengwei Hu, Siyuan Wang, Chromatin tracing: Imaging 3D genome and nucleome, *Trends in Cell Biology*, Volume 31, Issue 1, Pages 5-8, (2020).  
Selected as “Best of 2021: *Trends in Cell Biology*”.
15. Miao Liu, Yanfang Lu, Bing Yang, Yanbo Chen, Jonathan S.D. Radda, Mengwei Hu, Samuel G. Katz, Siyuan Wang, Multiplexed imaging of nucleome architectures in single cells of mammalian tissue, *Nature Communications*, Volume 11, Number 2907, (2020).  
*bioRxiv*, doi: <https://doi.org/10.1101/2019.12.20.885277>, (2019).
16. Ahilya N. Sawh, Maxwell E.R. Shafer, Jun-Han Su, Xiaowei Zhuang, Siyuan Wang, Susan E. Mango, Lamina-dependent stretching and unconventional chromosome compartments in early *C. elegans* embryos, *Molecular Cell*, Volume 78, Issue 1, Pages 96-111, (2020).
17. Jinrong Wu, Wei Qu, Guangsu Huang, Siyuan Wang, Cheng Huang, Han Liu, Super-resolution fluorescence imaging of spatial organization of proteins and lipids in natural rubber, *Biomacromolecules*, Volume 18, Issue 6, Pages 1705-1712, (2017).
18. Siyuan Wang, Jun-Han Su, Brian J. Beliveau, Bogdan Bintu, Jeffrey R. Moffitt, Chao-ting Wu, Xiaowei Zhuang, Spatial organization of chromatin domains and compartments in single chromosomes, *Science*, Volume 353, Issue 6299, Pages 598-602, DOI: 10.1126/science.aaf8084, (2016).
19. Siyuan Wang#, Jun-Han Su, Feng Zhang and Xiaowei Zhuang, An RNA-aptamer-based two-color CRISPR labeling system, *Scientific Reports*, Volume 6, Article 26857, (2016). #Corresponding author.
20. Alistair N. Boettiger, Bogdan Bintu, Jeffrey R. Moffitt, Siyuan Wang, Brian J. Beliveau, Geoffrey Funderberg, Maxim Imakaev, Leonid A. Mirny, Chao-ting Wu, and Xiaowei Zhuang, Super-resolution imaging reveals distinct chromatin folding for different epigenetic states, *Nature*, Volume 529, Pages 418-422, (2016).
21. Jeffrey R. Moffitt, Shristi Pandey, Alistair N. Boettiger, Siyuan Wang, Xiaowei Zhuang, Spatial organization shapes the turnover of a bacterial transcriptome, *Elife*, Volume 5, Article e13065, (2016).
22. Kok Hao Chen, Alistair N. Boettiger, Jeffrey R. Moffitt, Siyuan Wang, and Xiaowei Zhuang, Spatially resolved, highly multiplexed RNA profiling in single cells, *Science*, Volume 348, Issue 6233, aaa6090, (2015).
23. Siyuan Wang, Jeffrey R. Moffitt, Graham T. Dempsey, X. Sunney Xie and Xiaowei Zhuang, Characterization and development of photoactivatable fluorescent proteins for

single-molecule-based superresolution imaging, *PNAS*, Volume 111, Issue 23, Pages 8452-8457, (2014).

24. Xinliang Xu, Hao Ge, Chan Gu, Yi Qin Gao, Siyuan S. Wang, Beng Joo Reginald Thio, James T. Hynes, X. Sunney Xie, and Jianshu Cao, Modeling spatial correlation of DNA deformation: DNA allostery in protein binding, *The Journal of Physical Chemistry B*, Volume 117, Issue 42, Pages 13378-13387, (2013).
25. Sangjin Kim, Erik Brostromer, Dong Xing, Jianshi Jin, Shasha Chong, Hao Ge, Siyuan Wang, Chan Gu, Lijiang Yang, Yi Qin Gao, Xiao-dong Su, Yujie Sun, and X. Sunney Xie, Probing allostery through DNA, *Science*, Volume 339, Issue 6121, Pages 816-819, (2013).

### **B. Bacterial cytoskeleton and cell wall**

26. Siyuan Wang and Ned S. Wingreen, Cell shape can mediate the spatial organization of the bacterial cytoskeleton, *Biophysical Journal*, Volume 104, Issue 3, Pages 541-552, (2013).
27. Siyuan Wang# and Joshua W. Shaevitz, The mechanics of shape in prokaryotes, *Frontiers in Bioscience (Scholar Edition)*, Volume 5, Pages 564-574, (2013). #Corresponding author.
28. Siyuan Wang, Leon Furchtgott, Kerwyn Casey Huang and Joshua W. Shaevitz, Helical insertion of peptidoglycan produces chiral ordering of the bacterial cell wall, *PNAS*, Volume 109, Issue 10, Pages E595-E604, (2012).
29. Sven van Teeffelen, Siyuan Wang, Leon Furchtgott, Kerwyn Casey Huang, Ned S. Wingreen, Joshua W. Shaevitz and Zemer Gitai, The bacterial actin MreB rotates, and rotation depends on cell-wall assembly, *PNAS*, Volume 108, Issue 38, Pages 15822-15827, (2011).
30. Siyuan Wang, Hugo Arellano-Santoyo, Peter A. Combs and Joshua W. Shaevitz, Actin-like cytoskeleton filaments contribute to cell mechanics in bacteria, *PNAS*, Volume 107, Issue 20, Pages 9182-9185, (2010).
31. Siyuan Wang, Hugo Arellano-Santoyo, Peter A. Combs and Joshua W. Shaevitz, Measuring the bending stiffness of bacterial cells using an optical trap, *Journal of Visualized Experiments*, Volume 38, doi: 10.3791/2012, (2010).

### **C. Gene regulatory network dynamics (undergraduate publications)**

32. Ming Ni\*, Siyuan Wang\* and Qi Ouyang, Modelling the SOS response by semi-stochastic simulation, *Chinese Physics Letters*, Volume 25, Number 7, Pages 2702-2705, (2008).
33. Ming Ni, Siyuan Wang, Jikun Li and Qi Ouyang, Simulating the temporal modulation of inducible DNA damage response in *Escherichia coli*, *Biophysical Journal*, Volume 93, Issue 1, Pages 62-73, (2007).
34. Siyuan Wang, Yuping Zhang and Qi Ouyang, Stochastic model of coliphage lambda regulatory network, *Physical Review E*, Volume 73, Issue 4, Article 041922, (2006).

## **PATENTS**

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1. Siyuan Wang, Bing Yang and Mengwei Hu, Systems and methods for determining barcodes and screening in situ, U.S. Provisional Patent Application No. 63/162,257, PCT Application No. PCT/US22/20546. Publication No. WO 2022/197801 A1.
2. Siyuan Wang and Miao Liu, High-yield probe library construction, U.S. Provisional Patent Application No. 63/155,984, PCT Application No. PCT/US2022/018480. Publication No. WO 2022/187334 A1.
3. Siyuan Wang and Yanbo Chen, Single-cell locus-specific profiling of epigenetic marks, U.S. Provisional Patent Application No. 63/062,779, PCT Application No. PCT/US21/44994, Publication No. WO 2022/032129 A1.
4. Xiaowei Zhuang, Kok-Hao Chen, Alistair Boettiger, Jeffrey R. Moffitt and Siyuan Wang, Systems and methods for determining nucleic acids, US11098303B2, Status: Active.
5. Xiaowei Zhuang, Siyuan Wang and Jeffrey R. Moffitt, Photoconvertible fluorescent proteins, U. S. Provisional Patent Application No. 61/979,436, PCT Application No. PCT/US2015/025540, Publication No. WO2015160690A1.

## **GRANTS**

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### **Ongoing Research Support**

Agency: NIH/NIGMS

I.D.# DP2 GM137414

Title: “Building the 3D genomic regulatome”

P.I.: Siyuan Wang, Ph.D.

Total costs for project period: \$2,512,500

Project period: 09/30/2019 – 05/31/2024

Agency: NIH/NCI

I.D.# R33 CA251037

Title: “Multiplexed imaging of chromatin folding and RNA profiles in cancer”

P.I.: Siyuan Wang, Ph.D. Mandar Deepak Muzumdar, MD

Total costs for project period: \$1,237,899

Project period: 08/01/2020 – 07/31/2023

Agency: NIH/NHGRI

I.D.# R01 HG011245

Title: “Integrative single-cell spatial genomic, transcriptomic, and epigenetic imaging in mammalian

tissue”

P.I.: Siyuan Wang, Ph.D.

Total costs for project period: \$2,111,787

Project period: 08/10/2020 – 05/30/2024

Agency: NIH/4DN

I.D.# U01 CA260701

Title: “Genome Architecture in Human Germinal Center B Cell Development, Malignancy, and Somatic Hypermutation”

P.I.: David G. Schatz, Ph.D. Siyuan Wang, Ph.D.

Total costs for project period: \$3,203,465

Project period: 09/15/2020 – 08/31/2025

Agency: NIH/SenNet

I.D.# UG3 CA268202

Title: “Spatial omics technologies to map the senescent cell microenvironment”

P.I.: Nicola Neretti, Ph.D. Siyuan Wang, Ph.D. Jian Ma, Ph.D.

Total costs for project period: \$915,800

Project period: 09/22/2021 – 08/31/2023

Agency: Pershing Square Sohn Cancer Research Alliance

Title: “Development of Novel Technologies to Discover Cancer 3D Genome and Transcriptome Regulation”

P.I.: Siyuan Wang, Ph.D.

Total costs for project period: \$600,000

Project period: 07/01/2022-06/30/2025

Agency: NIH/National Heart, Lung, and Blood Institute

I.D.# R01 HL131952-06A1

Title: “Endothelial cell- specific Wnt suppression ameliorates vascular inflammation”

PI: Julie Goodwin, MD

Role on Project: Co-investigator

Total costs for project period: \$2,367,511

Project period: 01/01/2022-12/31/2025

Agency: NIH/NIGMS

I.D.# R21 HL165342

Title: miRNA-regulation at focal adhesions establishes vascular mechanohomeostasis

PI: Stefania Nicoli, Ph.D.

Role on Project: Co-investigator  
Total costs for project period: \$458,543  
Project period: 07/01/2022 – 06/30/2024

### **Completed Research Support**

Agency: Yale Alzheimer Disease Research Center Pilot  
I.D.# P30 AG066508  
Title: “Yale Alzheimer Disease Research Center”  
PI: Stephen Strittmatter, MD, PhD Pilot Project PI: Pallavi Gopal, MD, PhD  
Role on Project: Co-investigator  
Project period: 06/01/2020-4/30/2022

Agency: NIH/NIDA  
I.D.# U01 DA047734  
Title: “An Integrated Imaging System for High-throughput Nanoscopy of the 4D Nucleome”  
P.I.: Joerg Bewersdorf, Ph.D.  
Role on Project: Co-investigator  
Total costs for project period: \$660,000  
Project period: 07/01/2018 – 06/30/2020

Agency: NIH/NIDDK  
I.D.# P30 DK34989 – Pilot Project  
Title: “Imaging-based 3D genomics and transcriptomics in aging liver”  
P.I.: Siyuan Wang, Ph.D.  
Total costs for project period: \$25,000  
Project period: 09/01/2018 – 08/31/2019

Agency: Jane Coffin Childs Foundation  
I.D.# 61-1501  
Title: “Chromatin imaging with STORM-FRET labels”  
P.I.: Siyuan Wang, Ph.D.  
Total costs for project period: \$154,500  
Project period: 07/01/2012 – 06/30/2015

## **ACADEMIC TALKS**

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### **CONFERENCE PRESENTATIONS**

**Invited talk**, title TBD, the 11th International Conference on Biological Physics (ICBP 2023), August 2023

- Invited talk**, title TBD, Penn State's 39th Summer Symposium on Chromatin and Gene Regulation, August 2023
- Invited talk**, Image-based Spatial Genomics in Health and Disease, The 10<sup>th</sup> International Symposium on 3D genomics, July 2023
- Invited talk**, High-content image-based CRISPR screening reveals regulators of 3D genome architectures, International Society for Stem Cell Research, June 2023
- Invited talk**, Perturb-Tracing Enables High-Content Discovery of 3D Genome Regulators, Gordon Research Conference on Genome Architecture in Cell Fate and Disease, June 2023
- Talk**, High-content image-based CRISPR screening reveals regulators of 3D genome architectures, NIH High-Risk, High-Reward Research Symposium, June 2023
- Invited talk**, “Image-based Spatial Genomics in Health and Disease”, NextGen Omics US Meeting, March 2023
- Invited talk**, “Image-based Spatial Genomics in Health and Disease”, American Physical Society March Meeting, March 2023
- Talk**, “High-content image-based CRISPR screening reveals regulators of 3D genome architectures”, American Physical Society March Meeting, March 2023
- Invited talk**, “Genome-wide chromatin tracing reveals three-dimensional genome reorganization during lung cancer progression”, Biophysical Society Annual Meeting, February 2023
- Talk**, “High-content image-based CRISPR screening reveals regulators of 3D genome architectures”, Biophysical Society Annual Meeting, February 2023
- Talk**, “Image-based Spatial Genomics in Health and Disease”, Chinese Biological Investigators Society 13<sup>th</sup> Biennial Conference, December 2022
- Talk**, “Genome Architecture in Human Germinal Center B Cell Development, Malignancy, and Somatic Hypermutation”, 4D Nucleome Consortium Annual Meeting, December 2022
- Talk**, “Genome-wide chromatin tracing reveals three-dimensional genome reorganization during lung cancer progression”, NCI Annual IMAT Meeting, December 2022
- Invited talk**, “Image-based Spatial Genomics in Health and Disease”, The First International Conference on Single-Cell Sequencing and Spatial Omics (TICSSO-1), November 2022
- Invited talk**, “Image-based spatial genomics and multiomics”, 8<sup>th</sup> 3D Genome International Symposium, November 2021
- Talk**, “Genome Architecture in Human Germinal Center B Cell Development, Malignancy, and Somatic Hypermutation”, 4D Nucleome Consortium Kick-off Meeting, December 2020
- Invited talk**, “Image-based spatial genomics and multiomics”, 2020 Sino-American Pharmaceutical

Professionals Association Annual Conference, November 2020

**Talk**, “Multiplexed imaging of nucleome architectures in single cells of mammalian tissue”, CSHL Meeting: Systems Biology – Global Regulation of Gene Expression, March 2020

**Invited talk**, “Image-based 3D genomics”, 2019 Telluride Workshop on Physical Genomics and Transcriptional Engineering, February 2019

**Invited talk**, “Imaging the 3D genome”, MIT Technology Review EmTech China, January 2019

**Invited talk**, “Spatial organization of chromatin domains and compartments in single chromosomes”, International Union of Pure and Applied Physics Young Scientist Prize talk, 9<sup>th</sup> International Conference on Biological Physics, June 2017

**Talk**, “Spatial organization of chromatin domains and compartments in single chromosomes”, 2017 American Physical Society March Meeting, March 2017

**Invited talk**, “Imaging the spatial organization of chromosomes in fixed and live cells”, 2016 American Society for Cell Biology Annual Meeting, December 2016

**Talk**, “Spatial organization of chromatin domains and compartments in single chromosomes”, 2016 American Society for Cell Biology Annual Meeting, December 2016

**Talk**, “Spatial organization of chromatin domains and compartments in single chromosomes”, Northeast Regional Chromosome Pairing Conference, Harvard Medical School, October 2016

**Talk**, “Spatial organization of topologically associated domains in individual chromosomes”, Epigenetics & Chromatin Meeting, Cold Spring Harbor Laboratory, September 2016

**Invited panelist**, 22<sup>nd</sup> Annual Boson Bacterial Meeting, Superresolution Breakout Session, June 2016

**Talk**, “Cell shape can mediate the spatial organization of the bacterial cytoskeleton”, American Physical Society March Meeting, March 2013

**Invited talk**, “DBIO Best Thesis Award: Mechanics, Dynamics, and Organization of the Bacterial Cytoskeleton and Cell Wall”, American Physical Society March Meeting, March 2012

## **EXTERNAL SEMINARS**

**Invited talk**, “Image-based Spatial Genomics in Health and Disease”, Suzhou Institute of Systems Medicine, Chinese Academy of Medical Sciences, July 2023.

**Invited talk**, “High-Content Image-Based CRISPR Screening Reveals Regulators of 3D Genome Architectures”, NIH High-Risk, High-Reward Research (HRHR) Seminar, May 2023.

**Invited talk**, title TBD, Department of Biochemistry & Cellular and Molecular Biology, University of Tennessee, April 2023

- Invited talk**, “Image-based Spatial Genomics in Health and Disease”, The Jackson Laboratory, February 2023
- Invited talk**, “Image-based Spatial Genomics in Health and Disease”, Dartmouth College, September 2022
- Invited talk**, “A practical guide to representative image-based spatial transcriptomics technologies”, Technology Area Forum on Understanding Cells in Context: Spatial Transcriptomics 2022, National Human Genome Research Institute, May 2022
- Invited talk**, “Image-based Spatial Genomics in Health and Disease”, University of Virginia, April 2022
- Invited talk**, “Development of novel technologies to discover cancer 3D genome and transcriptome regulation”, Pershing Square Sohn Cancer Research Alliance, April 2022
- Invited talk**, “Image-based Spatial Genomics in Health and Disease”, University of Pennsylvania, January 2022
- Invited talk**, “Image-based spatial genomics and multiomics”, University of Illinois College of Medicine, November 2021
- Invited talk**, Cell Press Webinar on “Spatial and Temporal Genomics in Cancer Research”, July 2021
- Invited talk**, “Studying cancer nucleome architectures with chromatin tracing and MINA”, National Cancer Institute, March 2021
- Invited talk**, “Image-based spatial genomics and multiomics”, Rutgers University, Jan 2021
- Talk**, “Image-based spatial genomics and transcriptomics”, RNA Collaborative Seminar Series (by RNA Society), August 2020
- Talk**, “Multiplexed imaging of nucleome architectures in single cells of mammalian tissue”, Fragile Nucleosome Seminar Series (international virtual seminar series attended by >2,500 scientists from >45 countries), June 2020
- Invited talk**, “Multiplexed imaging of nucleome architectures in single cells of mammalian tissue”, Spatial Omics Seminar Series (international virtual seminar series organized by Georgia Tech and Yale University), April 2020
- Invited talk**, “Imaging Genomic Architectures and RNA profiles in Single Cells in Mammalian Tissue”, Tsinghua University Department of Chemistry Seminar, Beijing, China, October 2019
- Invited job talk**, Division of Genetics and Genomics, Boston Children’s Hospital – Harvard Medical School, April 2017
- Invited job talk**, Chan Zuckerberg Biohub, March 2017
- Invited job talk**, Department of Pathology and Cell Biology, Columbia University, March 2017

**Invited job talk**, Department of Cell and Developmental Biology, Vanderbilt University, February 2017

**Invited job talk**, Department of Biological Chemistry, University of California Los Angeles, February 2017

**Invited job talk**, Lewis-Sigler Institute, Princeton University, February 2017

**Invited job talk**, Department of Genetics, Yale School of Medicine, January 2017

**Invited job talk**, Department of Molecular, Cellular and Developmental Biology, Yale University, January 2017

**Invited job talk**, Department of Molecular Biosciences, Northwestern University, January 2017

**Invited job talk**, Department of Genetics, Washington University in St. Louis School of Medicine, January 2017

**Invited job talk**, NIH Stadtman Tenure-Track Investigator Program, National Cancer Institute, December 2016

**Invited talk**, “Spatial organization of chromatin domains and compartments in single chromosomes”, the Fifth Annual Rising Stars Symposium, Biochemistry Department, University of Utah, September 2016

**Invited talk**, “Multiplexed DNA tracing and RNA profiling in single cells with sequential FISH”, Institute of Microbiology, Chinese Academy of Sciences, July 2016

## **INTRAMURAL SEMINARS**

**Invited talk**, “Genome-wide chromatin tracing reveals three-dimensional genome reorganization during lung cancer progression”, Yale Colorectal Cancer 2023 Retreat, May 2023

**Invited talk**, “Genome-wide chromatin tracing reveals three-dimensional genome reorganization during lung cancer progression”, Yale Translational Lung Cancer Seminar, February 2023

**Talk**, “Image-based Spatial Genomics in Health and Disease”, Yale Genetics Department Retreat, August 2022

**Invited talk**, “A practical guide to representative image-based spatial transcriptomics technologies”, Kavli Workshop on Spatial Transcriptomics, October 2022

**Talk**, “Multiplexed FISH data analysis with MinaAnalyst”, Yale Center for Genome Analysis, Aug 2021

**Invited talk**, “Multiplexed FISH Q&A”, Yale Center for Genome Analysis, March 2021

**Invited talk**, “3D genome – Image-based spatial omics”, Yale Pancreatic Cancer Collaborative Seminar Series, Dec 2020

**Talk**, “3D Genome and image-based spatial omics”, Yale Genetics Department Retreat, September 2020

- Invited talk**, “Multiplexed imaging of nucleome architectures in single cells of mammalian tissue”, Yale Cancer Center Radiobiology and Radiotherapy Research Program, May 2020
- Invited talk**, “Imaging genomic architectures and RNA profiles in single cells of mammalian tissue”, Yale RNA Center Retreat, October 2019
- Talk**, “Multiplexed imaging of genomic architectures in single cells of mammalian tissue”, Yale Cell Biology Department Retreat, October 2019
- Invited talk**, “Imaging genomic architectures and RNA profiles in single cells of mammalian tissue”, Yale Cancer Metabolism Interest Group, October 2019
- Talk**, “Multiscale integrative observation of nucleome architectures in mammalian tissue”, Yale Genetics Department Retreat, September 2019
- Invited talk**, “Three dimensional (3D) genomics”, Yale Day of Instrumentation, November 2018
- Talk**, “Architectures, functions, and mechanisms of the 3D genome”, Yale Genetics Department Retreat, September 2018
- Invited talk**, “DNA tracing and RNA profiling in single cells with multiplexed sequential FISH”, Yale Joint Cardiovascular Meeting, Yale University, May 2018
- Invited talk**, “DNA tracing and RNA profiling in single cells with multiplexed sequential FISH”, Yale Liver Center program project grant talk, Yale University, March 2018
- Invited talk**, “DNA tracing and RNA profiling in single cells with multiplexed sequential FISH”, Yale Liver Center, Yale University, January 2018
- Invited talk**, “DNA tracing and RNA profiling in single cells with multiplexed sequential FISH”, Yale Stem Cell Center, Yale University, November 2017
- Talk**, “DNA tracing and RNA profiling in single cells with multiplexed sequential FISH”, Yale Genetics Department Retreat, September 2017
- Invited talk**, “Spatial organization of chromatin domains and compartments in single chromosomes”, Single-Cell Genomics Workshop, Harvard Stem Cell Institute, November 2016
- Invited talk**, “Spatial organization of chromatin domains and compartments in single chromosomes”, Cellular Dynamics Research Talk, Harvard University, October 2016
- Invited talk**, “Multiplexed error-robust FISH (MERFISH) in single-cell transcriptomic and genomic determination”, Single Cell Genomics Symposium, Harvard Medical School, October 2015
- Invited talk**, “Characterization and development of photoactivatable fluorescent proteins for single-molecule-based superresolution imaging”, Squishy Physics Talk, Harvard University, June 2015

## **TEACHING AND ADVISING**

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### **At Yale:**

#### Teaching:

Co-teaching and supervising Graduate Student Seminar (GENE 675 and GENE 676), 2020-present

Guest lecture in Genomic Methods for Genetic Analysis (GENE 760), 2023

Guest lecture in Illuminating Cellular Function (CBIO701), 2022

Guest lectures in Graduate Student Seminar (GENE 675 and GENE 676), 2018-2019

Guest lectures in Research Skills and Ethics I class (GENE 900a), 2018-2019

Guest lecture in Machine Learning for Biology (GENE 555), Fall 2017

#### Mentoring:

Postdoc advisor of Tianqi Yang, Winter 2022-Present

Postgrad advisor of Ruihuan Yu, Winter 2021- Spring 2023

Postdoc advisor of Patrick Morley Willoughby, Fall 2021- Spring 2023

PhD thesis advisor of Tyler Jensen, Summer 2020-Present

PhD thesis advisor of Shengyan Jin, Spring 2020-Present

PhD thesis advisor of Yubao Cheng, Spring 2020-Present

PhD thesis advisor of Mengwei Hu, Spring 2019- Spring 2023

PhD thesis advisor of Jonathan Radda, Spring 2019-Present

PhD thesis advisor of Bing Yang, Spring 2018-Summer 2023

PhD thesis advisor of Yanbo Chen, Spring 2018-Present

PhD thesis advisor and postdoc advisor of Miao Liu, Spring 2018-Present

Postgrad advisor of Yanfang Lu, 2018-2019

Faculty job talk coaching for other PIs' postdocs: Tao Wu (Feb 2018), Sheng Chih (Peter) Jin (Aug 2018), Jean-Denis Beaudoin (Jan 2019), Sangbum Park (May 2019), Tianchi Xin (Feb 2020), Dionna Kasper (Feb 2020), Jian Xie (March 2021), Sara Gallini (Nov 2022), Joey Ghersi (Jan 2023).

### **Before Yale:**

Graduate Rotation Advisor of Seon Kinrot, Harvard University, Summer 2016

Junior Graduate Student Advisor of Jun-Han Su, Harvard University, Summer 2015-Spring 2016

Graduate Rotation Advisor of Jun-Han Su, Harvard University, Winter 2014

Junior Research and Senior Thesis Advisor of David Su, Harvard University, Spring 2013-Summer 2014

Summer MD Student Advisor of Kevin Chen, Harvard University, Summer 2012

Graduate Rotation Advisor of Jiao Ma, Harvard University, Winter 2011

Undergraduate Research Advisor of Alva Strand, Princeton University, 2010-2011

Undergraduate Research Advisor of Tina Huang, Princeton University, Summer 2009

Teaching Assistant: Quantitative Principles in Cell and Molecular Biology, Princeton University, 2009

Teaching Assistant: Introduction to Cellular and Molecular Biology, Princeton University, 2009

## SERVICE

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### External:

Co-Chair: Imaging Omics Working Group of National Institutes of Health 4D Nucleome Consortium 2020-Present

Co-Organizer: Symposium on Single Cell Biophysics & Super-resolution Microscopy, International Conference on Biological Physics 2023 (ICBP 2023) 2023

Co-Organizer: NHGRI virtual forum “Understanding Cells in Context: Spatial Transcriptomics” 2022

Principal Organizer: Invited Session on Mechanics, Dynamics, and Organization in Cell Growth and Division, 2013 American Physical Society March Meeting 2012

Principal Organizer: Cell Shape Journal Club, Department of Molecular Biology, Princeton University 2009, 2010

### At Yale:

- Graduate admission interviewer for MCGD track of BBS program, Spring 2023
- Postdoc mentoring committee for Xinyu Ling, 2022-Present
- PhD thesis committee for Rana Gbyli, 2022-Present
- Chair, Genetics Department seminar committee, Fall 2022-Present
- Genetics Department Microscopy Facility Director Selection Committee, Summer 2022
- Graduate admission interviewer for MCGD track of BBS program, Spring 2022

- Graduate admission interviewer for BQBS track of BBS program, Spring 2022
- Faculty search committee for the Microbial Sciences Institute of Yale, Fall 2021-Spring 2022
- Genetics Department faculty open search committee, Fall 2021
- Graduate admission interviewer for MD/PHD program, Fall 2021
- Postdoc mentoring committee for Fan (Ivan) Xia, 2021-Present
- Technology advisor for Yale Center for Genome Analysis Multiomic Imaging Facility, 2021-Present
- Postdoc mentoring committee for Chethan Reddy, 2021-Present
- PhD general exam committee for Chris Lee, Spring 2021
- PhD general exam committee for Jong Seo (Paul) Lee, Spring 2021
- Graduate admission interviewer for MCGD track of BBS program, Spring 2021
- MCGD track rotation talk moderator, Dec 2020
- Genetics Department mentoring committee, 2020-Present
- Faculty search committee for the Microbial Sciences Institute of Yale, Fall 2020-Spring 2021
- PhD thesis committee for Wenxin Yuan, 2020-Present
- PhD general exam committee for Wenxin Yuan, Fall 2020
- Yale School of Medicine strategic planning committee on nuclear cell biology, epigenetics, and single cell technology, Summer 2020
- PhD general exam committee for Haoming Yu, Summer 2020
- PhD thesis committee for Cecelia Harold, 2020-Present
- PhD thesis committee for Yiqun Jiang, 2020-Present
- PhD general exam committee for Yiqun Jiang, Summer 2020
- PhD thesis committee for Jiaying Chen, 2020-Present
- MCGD track rotation talk moderator, March 2020
- Graduate admission interviewer for MCGD track of BBS program, Spring 2020
- Graduate admission interviewer for BQBS track of BBS program, Spring 2020
- Genetics Department grant review working group, 2019-2020
- Graduate admission interviewer for MD/PHD program, Fall 2019
- PhD thesis committee for Meng Tian, 2019-Present

- PhD general exam committee for Meng Tian, Fall 2019
- PhD general exam committee for Katherine Koczwara, Fall 2019
- PhD general exam committee for Jiaying Chen, Fall 2019
- Genetics Department retreat poster award judge, Fall 2019
- Yale Center for Genome Analysis scientific advisory committee, 2019-Present
- PhD thesis committee for Dennis May, 2019-Present
- Graduate admission interviewer for MCGD track of BBS program, Spring 2019
- MCGD track rotation talk moderator, Jan 2019
- Genetics Department seminar committee, 2018-Present
- Genetics Department faculty open search committee, Fall 2018
- PhD general exam committee for Oscar Chavez Ibanez, Fall 2018
- PhD general exam committee for Maria Benitez, Fall 2018
- PhD general exam committee for Dennis May, Fall 2018
- Genetics Department retreat poster award judge, Fall 2018
- PhD thesis committee for Raman Nelakanti, 2018-2021
- PhD general exam committee for Raman Nelakanti, Summer 2018
- PhD thesis committee for Henry (Shun Hang) Chan, 2018-2021
- Graduate admission interviewer for MCGD track of BBS program, Spring 2018
- Graduate admission interviewer for BQBS track of BBS program, Spring 2018
- Graduate admission committee for MCGD track of BBS program, Fall 2017
- Genetics Department faculty open search committee, Fall 2017
- PhD thesis committee for Andrew Barentine, 2017-2021
- PhD general exam committee for Andrew Barentine, Fall 2017
- PhD general exam committee for Paul Renauer, Fall 2017

## **INDEPENDENT GRANT REVIEWER FOR**

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NIH study section GCAT, 2023

NIH/NIDCR study section ZDE1 AC (14), 2022

W. M. Keck Foundation, 2022

Wellcome Investigator Award in Science, 2021

## **INDEPENDENT JOURNAL REVIEWER FOR**

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*Science*

*Nature Methods*

*Nature Chemical Biology*

*Nature Communications*

*Science Advances*

*Genome Biology*

*Journal of Bacteriology*

*Scientific Reports*

*Molecular Microbiology*

*Frontiers in Physiology*

*Optics Letters*

*Plos Genetics*

*Current Opinion in Cell Biology*

*Nature Biotechnology*

*Trends in Genetics*

*Trends in Biotechnology*

*Physical Review Letters*

*Journal of Cell Biology*

*Physical Biology*

*Journal of Physics D*

*Journal of Optics*

*AIP Advances*

*Molecular & Cellular Biomechanics*

*Microscopy Research and Technique*

*Biochemistry*