

Siyuan (Steven) Wang, Ph.D.

Sterling Hall of Medicine I 342A (Office)
Nathan Smith Building 387 (Lab)
333 Cedar Street
New Haven, CT 06510

Office Phone: (203)785-4511
Lab Phone: (203)737-1650
E-mail: siyuan.wang@yale.edu

ACADEMIC APPOINTMENTS

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

EDUCATION

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

AWARDS AND HONORS

◆ Hevolution/AFAR New Investigator Award	2024
◆ 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

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

A. Spatial omics and related imaging technology development

1. Nikki Bialy, Frank Alber, Brenda Andrews, Michael Angelo, Brian Beliveau, Lacramioara Bintu, Alistair Boettiger, Ulrike Boehm, Claire M. Brown, Mahmoud Bukar Maina, James J. Chambers, Beth A. Cimini, Kevin Eliceiri, Rachel Errington, Orestis Faklaris, Nathalie Gaudreault, Ronald N. Germain, Wojtek Goscinski, David Grunwald, Michael Halter, Dorit Hanein, John W. Hickey, Judith Lacoste, Alex Laude, Emma Lundberg, Jian Ma, Leonel Malacrida, Josh Moore, Glyn Nelson, Elizabeth Kathleen Neumann, Roland Nitschke, Shuichi Onami, Jaime A. Pimentel, Anne L. Plant, Andrea J. Radtke, Bikash Sabata, Denis Schapiro, Johannes Schöneberg, Jeffrey M. Spraggins, Damir Sudar, Wouter-Michiel Adrien Maria Vierdag, Niels Volkmann, Carolina Wählby, Siyuan (Steven) Wang, Ziv Yaniv, Caterina Strambio-De-Castillia, Harmonizing the Generation and Pre-publication Stewardship of FAIR Image Data, *arXiv*:2401.13022, (2024).
2. Miao Liu*, Shengyan Jin*, Sherry S. Agabiti*, Tyler B. Jensen, Tianqi Yang, Jonathan S. D. Radda, Christian F. Ruiz, Gabriel Baldissera, Mandar Deepak Muzumdar# & Siyuan Wang#, A genome-wide single-cell 3D genome atlas of lung cancer progression, *bioRxiv*, doi:

<https://doi.org/10.1101/2023.07.23.550157>, (2023).

3. Yubao Cheng*, Mengwei Hu*, Bing Yang*, Tyler B Jensen*, Tianqi Yang, Ruihuan Yu, Zhaoxia Ma, Jonathan S D Radda, Shengyan Jin, Chongzhi Zang & Siyuan Wang, Perturb-tracing enables high-content screening of multiscale 3D genome regulators, *bioRxiv*, doi: <https://doi.org/10.1101/2023.01.31.525983>, (2023).
4. Leon Tejwani*#, Neal G. Ravindra*, Changwoo Lee*, Yubao Cheng*, Billy Nguyen, Kimberly Luttik, Luhan Ni, Shupeizhang, Logan M. Morrison, John Gionco, Yangfei Xiang, Jennifer Yoon, Hannah Ro, Fatema Haidery, Rosalie M. Grijalva, Eunwoo Bae, Kristen Kim, Regina T. Martuscello, Harry T. Orr, Huda Y. Zoghbi, Hayley S. McLoughlin, 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, *Neuron*, <https://doi.org/10.1016/j.neuron.2023.10.039>, (2023).
5. Benjamin Patterson*, Bing Yang*, Yoshiaki Tanaka, Kun-Yong Kim, Bilal Cakir, Yangfei Xiang, Jonghun Kim, Siyuan Wang# & In-Hyun Park#, Female naïve human pluripotent stem cells carry X chromosomes with Xa-like and Xi-like folding conformations, *Science Advances*, Vol 9, Issue 31, DOI: 10.1126/sciadv.adf2245, (2023).
6. Lauren Dickinson, Wenxin Yuan, Chantal LeBlanc, Geoffrey Thomson, Siyuan Wang & Yannick Jacob, Regulation of gene editing using T-DNA concatenation, *Nature Plants*, <https://doi.org/10.1038/s41477-023-01495-w>, (2023).
7. Andrew E. S. Barentine, Yu Lin, Edward M. Courvan, Phyllicia 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).
8. 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).
9. 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).
10. Yubao Cheng, Siyuan Wang, New mechanism of chromatin compartmentalization by BRD2, *Trends in Genetics*, Volume 38, Issue 12, Pages 1197-1198, (2022).
11. 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, *bioRxiv*, doi: <https://doi.org/10.1101/2021.10.04.463097>, (2021).
12. 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).
 13. 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).
 14. 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)*.
 15. 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).
 16. 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*”.
 17. 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).
 18. 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).
 19. 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).
 20. [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).

21. 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.
22. 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).
23. 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).
24. 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).
25. 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).
26. 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).
27. 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

28. 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).
29. 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.
30. 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).
31. 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).

32. 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).
33. 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)

34. 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).
35. 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).
36. 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

1. Siyuan Wang, Miao Liu, Mandar Muzumdar, Sherry Agabiti and Shengyan Jin, Methods of Determining Chromatin Alterations, U.S. Provisional Patent Application No. 63/264,520. PCT Application No. PCT/US22/80381. Publication No. WO 2023/097244 A1.
2. 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.
3. 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.
4. 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.
5. Xiaowei Zhuang, Kok-Hao Chen, Alistair Boettiger, Jeffrey R. Moffitt and Siyuan Wang, Systems and methods for determining nucleic acids, US11098303B2, Status: Active.
6. 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

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 – 07/31/2024

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/UH3 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: \$ 2,652,534
Project period: 09/22/2021 – 08/31/2025

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

Agency: Yale SPORE in Lung Cancer
I.D.# Development Research Program Pilot Award
Title: Three-dimensional genome reorganization drives adaptive resistance to EGFR inhibition in lung cancer
PI: Siyuan Wang, Ph.D. Mandar Deepak Muzumdar, MD
Direct costs for project period: \$50,000
Project period: 08/01/2023– 07/31/2024

Agency: American Federation for Aging Research/Hevolution foundation
I.D.# Hevolution/AFAR New Investigator Award in Biology and Geroscience Research
Title: Developing a high-content spatial transcriptomic screen method to discover novel regulators of cell-cell interaction in the native senescent microenvironment
PI: Siyuan Wang, Ph.D.

Total costs for project period: \$375,000
Project period: 12/31/2023 – 12/31/2026

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

CONFERENCE PRESENTATIONS

Talk, Perturb-tracing enables scalable high-content discovery of 3D genome regulators, CSHL Systems
Biology: Global Regulation of Gene Expression Meeting, March 2024

Invited talk, Image-Based 3D Genomics in Health and Disease, Telluride Workshop on Physical Genomics and Transcriptional Engineering, February 2024

Talk, A genome-wide single-cell 3D genome atlas of lung cancer progression, Keystone Symposium on Single-Cell Biology: Tissue Genomics, Technologies and Disease, January 2024

Talk, A genome-wide single-cell 3D genome atlas of lung cancer progression, 4DN Consortia Annual Meeting, December 2023

Talk, A genome-wide single-cell 3D genome atlas of lung cancer progression, NCI IMAT Program Annual Meeting, December 2023

Invited talk, Perturb-tracing enables scalable high-content discovery of 3D genome regulators, 2023 Sino-American Pharmaceutical Professionals Association Annual Conference, November 2023

Talk, A genome-wide single-cell 3D genome atlas of lung cancer progression, CSHL Single Cell Analyses Meeting, November 2023

Plenary talk, Perturb-tracing enables scalable high-content discovery of 3D genome regulators, American Society of Human Genetics 2023 Annual Meeting, November 2023

Invited talk, Image-based Spatial Genomics in Health and Disease, Single Cell Omics Beijing 2023 Meeting, Peking University, October 2023

Invited talk, Genome-wide chromatin tracing reveals three-dimensional genome reorganization during lung cancer progression, Quantitative Biology 2023-AI and Cell Fate Meeting, Peking University, October 2023

Invited talk, Image-based 3D genomics, The 6th Symposium on Single-cell Multiomics Research and Application, September 2023

Invited talk, Image-based Spatial Genomics in Health and Disease, the 11th International Conference on Biological Physics (ICBP 2023), August 2023

Invited talk, Image-based Spatial Genomics in Health and Disease, Penn State's 39th Summer Symposium on Chromatin and Gene Regulation, August 2023

Invited talk, Image-based Spatial Genomics in Health and Disease, The 10th 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 13th 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”, 8th 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, 9th 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, 22nd 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

Talk, Perturb-tracing enables scalable high-content discovery of 3D genome regulators, 4DN Grantee Webinar, March 2024

Invited talk, Image-based Spatial Genomics in Health and Disease, Biophyscial Society Multiscale Genome Organization Webinar, October 2023

Invited talk, Genome-wide chromatin tracing reveals three-dimensional genome reorganization during lung cancer progression, NIH SenNet Omics Webinar, September 2023

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, Image-based Spatial Genomics in Health and Disease, 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

Talk, Image-based Spatial Genomics in Health and Disease, Yale Genetics Department Retreat, August 2023

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

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), 2023-2024

Guest lecture in Illuminating Cellular Function (CBIO701), 2022-2024

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 Zifeng Wang, 2024-Present

Postdoc advisor of Shengyuan Dang, 2024-Present

Postdoc advisor of Yuan Zhang, 2024-Present

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), Chen Yuan Kam (Jan 2024), Kari Price (Jan 2024).

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

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
Organizer: Invited Session on Mechanics, Dynamics, and Organization in Cell Growth and Division, 2013 American Physical Society March Meeting	2012
Organizer: Cell Shape Journal Club, Department of Molecular Biology, Princeton University	2009, 2010

At Yale:

- Inaugural Secretary and Executive Committee Member of Asian Faculty Association at Yale (AFAY), 2023-Present
- Graduate admission interviewer for MCGD track of BBS program, Spring 2024
- PhD thesis committee for Gal Jaschek, 2024-Present
- Faculty mentor for Maurizio Chioccioli, Fall 2023-Present

- PhD general exam committee for Asmita Jha, Fall 2023
- Organizer of 2023 Yale Genetics Departmental Retreat, Fall 2023
- PhD general exam committee for Fiona Sievers, Fall 2023
- PhD thesis committee for Monique Pedroza, 2023-Present
- PhD thesis committee for Ilze Gomes, 2023-Present
- 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

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

Science

Nature Methods

Nature Chemical Biology

Nature Communications

Science Advances

Genome Biology

Cell Reports

Journal of Bacteriology

Scientific Reports

Molecular Microbiology

Frontiers in Physiology

Optics Letters

Plos Genetics

Current Opinion in Cell Biology

Cell

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