CURRICULUM VITAE
QING NIE

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EDUCATION

- The Ohio State University, Columbus, Ohio 1995
  PhD, Mathematics
- Wuhan University, P.R. China 1990
  MS, Computational Mathematics
- Wuhan University, P.R. China 1988
  BS, Computational Mathematics

POSITIONS HELD

University of California, Irvine

University of California Presidential Chair 7/1/2024-
Distinguished Professor 7/1/2023-

***Director*,** *The NSF-Simons Center for Multiscale Cell Fate Research* 2018-
(One of four national centers on Mathematics of Complex Biological Systems)
Chancellor's Professor 2017- 6/30/2023
Professor 2005-
Department of Mathematics
Department of Developmental and Cell Biology (split appointment since 2018)
Department of Biomedical Engineering (affiliated faculty)

Chancellor's Fellow 2005-2008
Center for Complex Biological Systems 2002-
Institute for Genomics and Bioinformatics 2007-
Chao Family Comprehensive Cancer Center 2011-
***Director*,** Center for Mathematical and Computational Biology (CMCB) 2005-
***Associate Director*,** Standard-alone PhD program on Mathematical, Computational, and Systems Biology (MCSB) 2014-
Director (2014-2018), **Acting Director** (2010-2013)**,**
Associate Director (2008-2013), UCI Campus-wide Interdisciplinary Ph.D. *Gateway* Program on Mathematical and Computational Biology (MCB)
***Associate Director*,** Center for Complex Biological Systems 2007-

Associate Professor 2002-2005
Department of Mathematics
Department of Biomedical Engineering
Center for Complex Biological Systems

Assistant Professor – Department of Mathematics 1999-2002

The University of Chicago
L.E. Dickson Instructor – Department of Mathematics 1997-1999
(Mentors: Peter Constantin and Todd Dupont)

University of Minnesota
Postdoctoral Fellow – Institute for Mathematics and Its Application 1996-1997
Annual Program on Mathematics in High-Performance Computing
The Ohio State University
Postdoctoral Researcher & Lecturer – Department of Mathematics 1995-1996

HONOR, DISTINGUISHED LECTURES, AWARDS

- **Fellow,** American Mathematical Society **(AMS)** 2024 -
- **Fellow**, Society for Industrial and Applied Mathematics (**SIAM**) 2021 -
- **Fellow**, American Physical Society (**APS**) 2014 -
- **Fellow**, American Association for the Advancement of Science (**AAAS**) 2013 -

- 2024 ***Frontiers of Science Award in Theoretical Computer and Information Sciences*** ($25K prize) for CellChat paper, International Congress of Basic Sciences

- **Plenary speaker**, ***Society of Mathematical Biology***, Annual meeting, Seoul, 7/2024
- Bioengineering & Life Science Deans Seminar, Notre Dame University, 8/2023
- Distinguished Lecture, Department of Mathematics, City U of Hong Kong, 5/2023
- Frontier Biology Seminar, Institute of Molecular Biology, Academia Sinica, Taipei, Taiwan, 5/2023
- Colloquium, **Frederic and Julia Wan Lecture**, Department of Applied Mathematics, University of Washington, 3/2023
- **Distinguished Speaker Seminar Series** – Center for Biomedical Data Science (CBDS), Yale University, 11/2021
- **Outstanding paper award (**AI/Machine Learning Session**)**, 2020 IEEE High Performance Extreme Computing Conference (HPEC) 2020
- **Best paper award**, International Consortium of Chinese Mathematics 2018
- **AMIGOS award,** Jayne Koskinas Ted Giovanis Foundation and Breast Cancer Research foundation 2016
- **Best paper award of the Journal**
  Discrete and Continuous Dynamical Systems-B, for the year 2011
- **Chancellor's Fellow**, University of California, Irvine, 2005-2008 (*http://www.ap.uci.edu/distinctions/titles.html#chancprof*)
- **Distinguished Lecture,** Information Science and Technology Center, 11/2008
  Colorado State University
- **Distinguished Lecture,** Interdisciplinary Mathematics Institute, 03/2014
  University of South Carolina
- **Distinguished Lecture (University),** Sun Yat-Sen University, China 05/2014
- **Distinguished Lecture on Frontier of Biology**, Institute of Molecular Biology, Academia Sinica, Taiwan 12/2015
- **Science at the Edge,** Michigan State University, 04/2016
- **Computational Medicine Lecture**, ICES, University of Texas, Austin, 04/2016
- **LeClerg Lecture**, Dept. of Animal & Avian Sciences, U. of Maryland, 04/2016

GRANTS

Current

1. ***The NSF-Simons Center for Multiscale Cell Fate Research***
   PI: NSF(DMS1763272) & Simons Foundation (594598,QN); **$10M** 07/18 - 06/24

2. ***Multiscale Models of Wound Cell Plasticity for Regeneration***
PI: NIH-NIAMS&NIBIB (U01AR073159); **$3.3M** 09/18 - 06/24

3. ***Pre-doctoral training Grant on "Mathematical, Computational and Systems Biology"***
MPI (one of the two MPIs, co-PD, PD Lander)
NIH-NIGMS(T32GM136624); $**1.8M** 07/20 - 06/25

4. ***MODULUS:RoL: Uncovering Roles of Cell Fate Decisions in Migrating Neural Cells***
Co-PI (Co-PI. PI: Tom Schilling):
NSF**-**MCB2028424; **$1.5M** 09/20-08/25

6. ***Dissecting single cell dynamics that coordinate neural crest migration and diversification***
MPI (one of two PIs. Contact PI: Tom Schilling):
NIH-NIDCR(R01DE030565) **$2.8M** 04/21-03/26

7. ***Tissue size and precision control in growing hair follicle***
MPI (one of two PIs. Contact PI: Max Plikus)
NIH-NIAMS (R01AR079150); **$2.7M** 02/22-11/26

8. ***RECODE: Functional characterization of human skin organoids***
Co-PI (one of three PI/Co-PIs, PI: Scott Atwood)
NSF-CBET2134916; **$1.5M** 01/22-12/25

9. ***Defining molecular mechanisms of combination adjuvants: a systems immunology, transcriptomics and imaging approach***
Co-investigator
PI: Huw Davis, NIH-NIAID (U01AI160497); **$2.4M** 03/21-02/25

10. **Ancestry dependent mapping of skin at a single cell level**
MPI (contact PI: Max Plikus)
Chan Zuckerberg Initiative (AN-0000000062); **$2M** 01/22-12/24

<u>Completed</u>

• *NIH P30 Skin Biology Resource-Based Center*
Co-Investigator. PI: Andersen NIH-NIAMS (P30AR075047); **$3.8M** 04/19-03/24

• *Transcriptional Co-Regulations in Epidermis*
Co-Investigator. PI: Andersen NIH-NIAMS (R01AR044882); **$2.2M** 04/19-03/24

• Identify novel activators and inhibitors of regeneration in human xenograft skin wound model
PI (Mentor for postdoctoral fellow Raul Ramos)
Diversity Supplement to NIH U01AR073159; **$240K** 06/21 - 06/23

• Collaborative grant to support NSF workshop on Models for Uncovering Rules and Unexpected Phenomena in Biological Systems
PI, NSF DMS-2232742; **$10K** 08/21 - 07/23

• NCI center for *Complexity, Cooperation and Community in Cance*r

Co-Investigator (Projects 1 and 3) PI: Lowengrub, Lander, Waterman,
NIH-NCI (U54-CA217378); **$9.5M** 04/18 - 03/23

• *Systems Biology*: *A Foundation for Interdisciplinary Careers*
Co-investigator
PI: German & Lander, NIH-NIGMS (R25-GM126365); **$1.5M** 09/17 - 08/22

• *A Short Course in Cancer Systems Biology*
Co-investigator
PI: Waterman & Lowengrub, NIH-NCI (R25-CA214654); **$1.3M** 04/17 - 03/22

• *Mammary Basal/Stem Cell Plasticity and Regulation*
Co-investigator responsible for the proposed modeling analysis
PI: Xing Dai, NIH-NIGMS (R01GM123731); **$1.7M** 09/17 - 05/21

• *Human Chorioid Plexus Epithelial Cells Derived from APOE isogenic iPSCs*
Co-Investigator PI: Ed Monuki
NIH-NIA (R21AG064640); **$400K** 08/19 -02/21

• *Spatial Dynamics of Tissue and Organ Size Control*
MPI (one of three MPIs): NIH-NINDS (R01NS095355); $**2.1M** 09/15-06/20

• *A New Cellular Target for CNS and Alzheimer Disease Studies*
UCI Schools of Medicine and Biological Sciences pilot award
PI: Ed Monuki; One of three co-PIs; **$50K** 10/18-09/20

• *Early Mammalian Embryo Development: Stochastic Modeling and Experiment*
PI: NSF-DMS (DMS1562176); $**1.2M** 06/16-05/20

• *Understanding the Role of Cell Plasticity in Mediating Drug Resistance*
PI (one of two PIs); Koskinas Ted Giovanis Foundation for Health and Policy
and the Breast Cancer Research Foundation; $**455,022** 02/17-01/20

• *Pre-doctoral training Grant on "Mathematical, Computational and Systems Biology"*
MPI (one of the two MPIs, co-PD): NIH-NIBIB (T32 EB09418); $**2.5M** 04/09-03/20

• *Stochastic Dynamics and Noise Control in Patterning Systems*
PI: NIH-NIGMS (R01GM107264); $1.3M 07/14-06/19

• *Defining an Integrated Signaling Network That Patterns the Craniofacial Skeleton*
MPI (one of three MPIs): NIH-NIDCR (R01DE023050); $3.2M 07/14-04/19

• *Inhibitory Neuron Circuit Organization and Function in Prefrontal Cortex*
Co-investigator, responsible for the proposed modeling work
PI: Xiangmin Xu, NIH-NIMH (R01MH105427); $2.5M 07/15-03/19

• *Differentiation and Stratification during Development:*
A Joint Computational and Experimental Investigation
PI: NSF-DMS (DMS1161621); $2M (no-cost extension) 09/12-08/18

• *National Center for Systems Biology –"Spatial Dynamics and Information Flows"*
PI: Lead PI for Theme on Mathematics and Computations;
(One of six PIs, NIH-NIGMS (P50GM76516); $26M 08/07-07/18

• *EMT Regulation in Epidermal Morphogensis*
Co-investigator, responsible for the proposed modeling work
PI: Xing Dai, NIH-NIAMS (R56AR064532); $339,900 09/15-08/17

• National Short Course on Systems Biology
Co-investigator, NIH-NIGMS (R25GM096989); $1.2M 2011-2016

• *Principle of Robust Developmental Patterning*
MPI (one of three MPIs): NIH-NIGMS (R01GM67247); $1.8M 2010-2015

• *Teaching Systems Biology*
Co-Director (one of two PIs): *HHMI Interfaces Training Innovation Program Supplements*
(HHMI Grant #56007658); $30K 2012-2014

• *Computational Analysis of Morphogensis*
PI: NSF DMS (DMS-0917492); $250K 2009-2012

• *Specificity and Spatial Dynamics of Cell Signaling: Theory and Experiment* 2005-2011

PI; NIGMS/NIH (R01GM75309); $1.2M

• *Principle of Robust Developmental Patterning*
Co-PI; NIGMS/NIH (R01GM67247-5); $1.6M 2007-2010

• *Role of Ovol Genes in Epidermal Development – Supplement*
PI: NIH (R01AR47320-08S1); 150K 2008-2010

• Developing a New Interdisciplinary Ph.D. Program on Mathematical, *Computational and Systems Biology*
Co-PI; Howard Hughes Medical Institute (HHMI-56005680); $1.0M 2006-2009

• *Morphological Evolution in Materials*
PI; DMS/NSF Program on Computational Mathematics (DMS0511169) 2005-2009

• *Morphogen Systems: A Joint Mathematical and Experimental Investigation*
Co-PI; NIGMS/NIH (R01GM67247-1); $1.4M 2002-2006

• *Transport and Complexity in Biological Systems*
Co-PI; NIGMS/NIH (P20GM66051); $0.7M 2002-2006

• *Computational of Interface Dynamics in Fluids and Materials*
PI; DMS/NSF Program on Computational Mathematics (DMS0074414) 2000-2003

• *Scientific Computing Research Environments*
Co-PI; NSF (DMS0112416) 2001-2003

SYNERGETIC ACTIVITIES

- Member, External Advisory Board of Center for Bioinformatics and Quantitative Biology, University of Illinois, Chicago, 12/2022 -
- Member, Scientific Advisory Committee for Mathematical Biosciences Institute (MBI), The Ohio State University, 2013-2016
- Member, Board of Trustee, Beijing Center for Scientific and Engineering Computing, 2014-2019
- One of two division chair nominations, Division of Biological Physics (DBIO), *American Physical Society* 2010
- One of two chair nominations, Activity Group on Life Sciences *Society of Industrial and Applied Mathematics* 2017

- NSF Review Panels
  - NSF (MPS/Division of Mathematical Sciences, 2006-2009,2011,2013,2015,2017
  - BIO/Molecular and Cellular Biology, 2010, 2017
  - MPS/Division of Mathematical Sciences Career panel, 2015
  - BIO/ Division of Environmental Biology – Rule of Life, 2019
  - BIO Career Award, 2019
  - MPS/Physics Frontiers Centers, 2020
  - NSF/BIO/MCB, Review Panel, March 2022
  - NSF/DMS/NIGMS, Review Panel, December 2022
  - NSF/MPS/PHY, Physics Frontier Centers Program, March 2023
  - NSF/BIO/MCB, The Synthesis Center for Molecular and Cellular Sciences Panel, September 2023
  - NSF National Institute for Theory and Mathematics Site Visit panel, May 2024

- NIH Special Emphasis Panels, Study Sections
  - NIGMS Math. Bio Initiative and COBRE: 2006-2009, 2011, 2013, 2015
  - NICHD Training Program Health Sciences (T32): 2011, 2013
  - NCI Physical Science Oncology Center: 2009
  - NIBIB Predictive Multiscale Models: 2012-2016; co-chair, 2015
  - Exceptionally Innovative Tools and Technologies for Single Cell Analysis: 2014
  - Academic Research Enhancement Award (AREA): 2013, 2016
  - BD2K Biomedical Data Science Training: 2015
  - Molecular and Cellular Hematology Study Section, 2016
  - NIGMS P41 site visiting and review panel, 2016

- MABS (Mathematical Analysis of Biological Systems) study section: June, October 2018; June 2019
- NCI intramural site visit team for the Laboratory of Cell Biology, 2019
- NIGMS Program on Maximizing Investigators' Research Award for Early Career Investigator, 2019
- NIH-NIDA (National Institute of Drug Abuse). Special emphasis panel on "Single cell Opioid responses in the context of HIV", 2020
- MABS (Mathematical Analysis of Biological Systems) study section: Feb. 2021
- NIH-NIGMS, Collaborative program grant for multidisciplinary teams (RM1) reviewer, September 2022
- NIH (institute-wide) Director's Early Independence Award (DP5) Editorial Board, March 2023
- NIH-National Institute of Mental Health Special Emphasis Panel for T32 training grant, 11/2023

- Howard Hugh Medical Institute and NIH Annual Meetings on Interface Programs: 2006-2009

- Breast Cancer Research Foundation Annual Meeting: 2017, 2018
- Invited Panelist, Brain Initiative Cell Atlas Network (BICAN) Workshop: From Single-Cell Genomics to Brain Function and Disorders – Data Integration and Annotation. 1/2024

- Reviewer for other agencies in US and other countries
  - Army Office of Research, 2014
  - Canada MITACS, 2007)
  - Minister of Education of China, 2009
  - Netherlands Organization for Scientific Research, 2009, 2011
  - Gerber Foundation, 2010)
  - European Research Council (ERC), 2011
  - French National Alliance for Life and Health Sciences. 2014
  - Wellcome Truest, 2015
  - UK-MRC (Medical Research Council, 2016
  - Cancer Systems Biology Program, French National Cancer Institute and INSERM, 2017
  - Leverhulme Trust, 2018
  - Simons Foundation – Collaborative Grants for Mathematicians, 2018
  - Ministry of Science and Technology – Academic Summit Program, Taiwan, 2020
  - European Research Council (ERC) – Advance Grant, January 2021
  - Natural Sciences and Engineering Research Council of Canada (NSERC)Discovery Grant, January 2021
  - Israel Science Foundation (ISF), March 2021
  - Swiss National Science Foundation, June 2021
  - Israel Science Foundation (ISF), January 2022
  - Natural Sciences and Engineering Research Council of Canada (NSERC)Discovery Grant, January 2022
  - Research Council of KU Leuven, Belgium, March 2022
  - New Cornerstone Investigator Program, China, November 2022
  - Swiss National Science Foundation, December 2022
  - Hong Kong Research Grants Council, Hong Kong, February 2023
  - Simons Foundation, June 2023
  - New Cornerstone Investigator Program, China, August 2023
  - The Fund for Scientific Research -FNRS, Belgium, February 2024
  - Israel Science Foundation (ISF), March 2024

- Member of committee on the Best Paper Awards (Applied Math B: Control, Bio-Mathematics, Machine Learning, Combinatorics), International Congress of Chinese Mathematicians (ICCM), 2017-2021

- UC Presidential Fellowship Review Committee, 2019

SOCIETY MEMBERSHIP

- American Association for the Advancement of Science 1999-
- Society for Industrial and Applied Mathematics (SIAM, life-time member) 1999-
- American Physical Society (APS) 2005-
- American Mathematical Society (AMS, life-time member) 1991-
- Phi Tau Phi Scholastic Honor Society of America (elected member) 2011-
- Society of Mathematical Biology 2012-

EDITORIAL BOARD

- *Mathematical Biosciences and Engineering* 2006-
- *Discrete and Continuous Dynamical System-B* 2010-
- *Journal of Bioengineering and Biomedical Science* 2011-
- *Current Synthetic and Systems Biology* 2013-
- *AIMS Biophysics* 2014-
- *PeerJ* 2015-
- *Annals of Mathematical Sciences and Applications* 2015-
- *Mathematical Biosciences* 2016-
- *PLoS Computational Biology (regular guest editor since 2013)* 2016-
- *BMC Systems Biology* *2017-*
- *BMC Bioinformatics* *2019-*
- *CSIAM Transactions on Applied Mathematics* *2020-*
- *The Innovation, Cell Press* *2020-*

VISITING POSITIONS

- **Distinguished Short-Term Visiting Professor** 06/17-06/19
  Institute of Science and Technology for Brain-Inspired Intelligence
  Fudan University, Shanghai, China
- **Distinguished Short-Term Visiting Professor** 04/16-04/19
  Beijing International Center for Mathematical Research
  Peking University, Beijing, China
- **Distinguished Short-Term Visiting Professor** 11/13-10/16
  School of Computer Engineering and Sciences
  Shanghai University, Shanghai, China,
- **Distinguished Visiting Professor** 04/11
  College of Arts and Sciences and Mathematical Biosciences Institute,
  The Ohio State University
- **Core Participant** 03/06-06/06
  Institute for Pure and Applied Mathematics, UCLA,
  "Cell and Materials: At the Interface between Mathematics, Biology and Engineering"
- **Long-Term Visitor** 11/03
  Mathematical Biosciences Institute, The Ohio State University
  "Mathematical Modeling of Cell Process"
- **Short-Term Visitor** 02/03
  Institute for Pure and Applied Mathematics, UCLA
  "Workshop on Cell & Materials: at the Tissue Engineering Interface"

UNIVERSITY & DEPARTMENTAL SERVICES (selected)

- Elected Member (via UCI Academic Senate election), Committee on Committees (COC), UCI 9/1/2022-8/31/2025
- Member, Chair Advisory Committee, Mathematics, UCI, 8/2023-
- Member, Faculty Recruitment Committee, Mathematics, UCI, 9/2023-6/2024
- Member, Executive Committee, UCI Center of Neural Circuit Mapping, UCI, 1/2020-
- Member, Graduate Study Committee, Department of Math, UCI 2021-2022
- Member, Presidential Postdoc Fellow Committee, Dept. Math, UCI 2021-2022

- Chair, Mathematical Biology Faculty Search Committee, Dept. of Math, UCI, 2020-2021
- UC President fellow evaluation review panel 1/2020
- Member, Thorp Chair Search Committee, Dept. of Math, UCI 2019-2022
- Member, Recruitment Committee for Visiting Assistant Professorship, Department of Mathematics, UCI, 2019
- Member, Executive Committee, MCSB PhD program, UCI, 2014 - present
- Member, Search Committee for Dean of School of Physical Sciences, UCI, 2019
- Member, Faculty Recruitment Committee, Dept. of Mathematics, UCI, 2018-2019
- Member, Faculty Recruitment Committee for Mathematical Biology/Biophysics, School of Physical Sciences, UCI, 2018-2019
- Member, Committee on Evaluating UCI Gateway Graduate Programs, UCI, 2018-2019
- Chair of Admission Committee, UCI *Mathematical and Computational Gateway Graduate Program* 2011-2017
  as a member 2007-2010, 2018-2019
- Member, Interdisciplinary Research and Training Working Committee 2016-2017
- Member, Academic Review Board, UC Irvine 2015-2016
- Member, Graduate Council, UC Irvine 2013-2016
- Member, International Education Committee, UC Irvine 2014-2016
- Chair, Recruitment Committee for campus-wide Faculty Search on Systems Biology (seven positions that could be in four different colleges), UC Irvine, 2007-2013
- Member, Dean Search Committee, School of Physical Sciences, UC Irvine 2011
- Chair, Steering Committee, School of Physical Sciences, UC Irvine 2009-2011
- Member, U. of California Divisional Senate Assembly, UC Irvine 2009-2011
- Chair, Distinguished Lecture Selection Committee, Department of Mathematics, UC Irvine 2007-2008
- Chair, Visiting Assistant Professor Recruiting Committee, Department of Mathematics, UC Irvine 2005-2006
- Member, Chairperson Selection Committee, Dept. of Mathematics, UC Irvine 2004
- Undergraduate Advisor for Specialization for Applied and Computational Mathematics, UC Irvine 2001-2004
- Leading founding faculty members to develop undergraduate specialization on Applied and Computational Mathematics, 2001
- Member, University Council for Research, Computing and Library Resources, UC Irvine 2002-2005

OUTREACH

Stimulated and supervised local high school students on various research projects 23), resulting in several award-winning presentations including **three** (Intel, Regeneron) Science Talent Search **semi-finalists** (more information in later pages).

PUBLICATIONS

Number of submitted manuscripts under review or revision: 5

2024

227. Almet, A, Y Tsai, M Watanabe, Q. Nie. Inferring pattern-driving intercellular flows from single-cell and spatial transcriptomics. ***Nature Methods***, Accepted in Principle, May 2024

226. Butenko S, R Nagalla, C Guerrero-Juarez, F Palomba, D Gay, A Almet, M DIgman, Q Nie, P Scumpia, M Plikus, Wendy Liu, Hydrogel crosslinking modulates macrophages, fibroblasts, and their communication, during wound healing, ***Nature Communications***, Accepted In Principle, May 2024

225. K Johnston, S Grieco, Q. Nie*, F Theis*, X Xu*, Small Data Methods in Omics: The Power of One ***Nature Methods***, Accepted In Principle, April 2024, * co-corresponding authors

224. Jin S, Plikus M, Q Nie. CellChat for systematic analysis of cell-cell communication from single-cell transcriptomics. ***Nature Protocols***, accepted for publication, 2024.

223. Geels S, …B Walker, …, Q. Nie, D Hoon, A Ganesan, S Othy, F Marangoni. Interruption of intratumor CD8:Treg crosstalk improves the efficacy of PD-1 immunotherapy. ***Cancer Cell***, Accepted In Principle, April 2024

222. Zhou P, F Bocci, T Li, and Q. Nie. Spatial transition tensor of single cells. ***Nature Methods***, Published, May 2024

221. Barcenas M, F Bocci, Q Nie. Tipping points in epithelial-mesenchymal lineages from single cell transcriptomics data. ***Biophysical Journal***, Published March 2024

220. Moreno J, O Dudchenko, …R Ramos, A Almet, …Q. Nie, ….M Plikus, E Kvon, E Aiden, and R Mallarino. *Emx2* underlies the development and evolution of marsupial gliding membranes. ***Nature,*** 629,127-135, 2024.

219. Sha Y, Y Qiu, P Zhou, Q Nie. Reconstructing growth and dynamic trajectories from single-cell transcriptomics data. ***Nature Machine Intelligence***, 6(25), 2024.

218. Kang TY, F Bocci, Q Nie, JN Onuchic, A Levchenko. Spatial-temporal order-disorder transition in angiogenic NOTCH signaling controls cell fate specification. ***ELife*:13**:RP89262, 2024.

2023

217. Walker B, Q. Nie. NeST: Nested hierarchical structure identification in spatial transcriptomics data, ***Nature Communications***, 14(6554), 2023

216. Bocci F, D Jia, Q Nie, M Jolly, J Onuchic. Theoretical and computational tools to model multistable gene regulatory networks. ***Reports on Progress in Physics,*** 86-106601, 2023

215. Johnson M, S Li, C Guerrero-Juarez, P Miller, B Brack, S Mereby, C Feigin, J Gaska, Q Nie, J Rivera-Perez, A Ploss, S Shvartsman, R Mallarino, A multifunctional Wnt regulator underlies the evolution of rodent stripe patterns. ***Nature Ecology and Evolution***, Oct 9, online, 2023

214. Yanai I, EJ Fertig, M Li, F Coscia, J Klughammer, Q Nie, J Chen, A Coskun. What do you most hope spatial molecular profiling will help us understand. ***Cell Systems,*** 14(7): 543-546. 2023

213. Wang X, A Almet, Q Nie. The promising application of cell-cell interaction analysis in cancer from single-cell and spatial transcriptomics. ***Seminars in Cancer Biology***, 95: 42-51, 2023

212. Sha Y, Qiu Y, Q Nie. NeuralGene: Inferring gene regulation and cell fate dynamics from Neural ODEs. ***Journal of Machine Learning for Modeling and Computing.*** 4(1): 1-15, 2023

211. Coulis G, D Jaime, C Guerrero-Juraez, … A MacLean, Q Nie, L Wallace, …., S Armando Villalta. Single-cell and spatial transcriptomics identify macrophage population associated with skeletal muscle fibrosis, ***Science Advances***, 9(27), eadd9984, 2023

210. Wang X …. Q Nie…. M Plikus. Signaling by senescent melanocytes hyperactivate hair growth, ***Nature***, 618(808-817), 2023

209. Stabell A, S Wang G Lee, J Ling, S Nguyen, G Sen, Q Nie, S Atwood. Single cell transcriptomics of human skin equivalent organoids, ***Cell Reports***, 16:42(5):112511, 2023

208. Almet, A. ….. Q Nie, …. M Kasper, M Plikus. A roadmap for a consensus human skin cell atlas and single-cell data standardization, ***Journal of Investigative Dermatology***, 143(9):1667-1677, 2023.

207. He C, P Zhou, Q Nie. exFINDER: identify external communication signals using single-cell transcriptomics data. ***Nucleic Acids Research***, 51(10), gkad262, 2023.

206. Dover K, Z Cang, A Ma, Q Nie*, R Vershynin*. AVIDA: An Alternating method for visualizing and integrating data, ***Journal of Computational Science,*** 68(101998), 2023. Co-corresponding authors

205. Zhao W, K Johnston, H Ren, X Xu, Q. Nie. Inferring neuron-neuron communications from single-cell transcriptomics through NeuronChat. ***Nature Communications***, 14(1128), 2023

204. Cang Z, Q. Nie. A mathematical method and software for spatially mapping intercellular communication. ***Nature Methods***, 20(2):185-186. 2023

203. Cang Z, Y Zhao, A Almet, A Stabell, R Ramos, M Plikus, S Atwood, Q Nie. Screening cell-cell communication in spatial transcriptomics via collective optimal transport. ***Nature Methods***, 20, 218-228. 2023

202. Wiedemann J, A Billi, F Bocci, ……, Q Nie, J Gudjonsson, B Andersen. Differential cell composition and split epidermal differentiation in human palm, sole, and hip skin. ***Cell Reports***, 42(1), 111994, 2023

201. Nee K, D Ma, Q Nguyen, ….. , P Zhou, Q. Nie. S Shalabi, M LaBarge, K Kessenbrock, Pre-neoplastic stromal cells promote BRCA1-mediated breast tumorigenesis. ***Nature Genetics***, 55(595-606), 2023.

200. Liau E#, S Jin#, Y Chen W Liu, M Calon, S Nedelec, Q Nie*, J Chen*. Single-cell transcriptomic analysis unveils the diversity within mammalian spinal motor neurons. ***Nature Communications***, 14(46). 2023. #: co-first, *: co-corresponding. ***Highlighted feature article***

2022

199. Bocci F, P Zhou, Q. Nie. spliceJAC: Transition genes and state specific gene regulation from

single-cell transcriptome data., ***Molecular Systems Biology***, 18:e11176, 2022

198. Cao Y, L Fu, J Wu, Q Peng, Q Nie, J Zhang, Xiaohui Xie. Integrated analysis of multimodal single-cell data with structural similarity. ***Nucleic Acids Research,*** gkac781, https://doi.org/10.1093/nar/gkac781, 2022

197. Ren H, B Walker, Z Cang, Q Nie. Identifying multicellular spatiotemporal organization of cells with SpaceFlow. ***Nature Communications***, 13(4076), 2022

196. Wang X, A Almet, Q. Nie. Analyzing network diversity of cell-cell interactions in COVID-19 using single-cell transcriptomics. ***Frontiers in Genetics***, fgene.2022.948508. August 29, 2022

195. Cang Z, Q. Nie, Y Zhao. Supervised Optimal Transport. ***SIAM Journal on Applied Mathematics***, 82(5), P1851-1877, 2022

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NIH K-Award MENTOR

Mentor:

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Mentor for the NIH Mentored Research Scientist Career Development Award K01 MH123896 -- *A Big Data Approach to Explore Epigenetic Heterogeneity and Interpret Noncoding variants for Psychiatric Disorders*. July 2020--June 2024

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STUDENTS AND POSTDOCS

Supervised Postdoctoral Fellows (30) Period at Nie Lab

Peijie Zhou, PhD Mathematics, Peking University, 2019-2023
Current position: Tenure-track assistant professor, Center for Machine Learning, Academy for Advanced Interdisciplinary Studies, Peking University

Christian Guerrero-Juarez, PhD Biology, University of California, Irvine, 2018-2022
Current position: MD student at Medical School of the University Illinois Urbana-Champaign

Zixuan Cang, PhD Mathematics, Michigan State University, 2018-2021
Current position. Tenure-track Assistant Professor, Dept of Mathematics, North Carolina State University

Suoqin Jin, PhD Mathematics, Wuhan University, China. 2016-2021
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Shuxiong Wang, PhD, Academy of Mathematics and Systems Science,
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Current position: Data Scientist, Pfizer In, San Diego

Lina Meinecke, PhD. Scientific Computing, Uppsala University, Sweden 2016-2019
Current position, Data Scientist, Life Science and medical industry-Altran, Munich, Germany

Adam MacLean, Ph.D. Systems Biology, Imperial College London, UK 2016-2018
Current position: Tenure-track Assistant Professor, Computational Biology, Dept. of Biology, U. of Southern California.

Qixuan Wang, Ph.D., Mathematics, University of Minnesota 2012-2018
Current Position: Tenure-track Assistant Professor, Department of Mathematics, University of California, Riverside.

Weitao Chen, Ph.D. Math. Ohio State University 2013-2017
Current Position: Tenure-track Assistant Professor, Department of Mathematics, University of California, Riverside.

Huijing Du, Ph.D. Applied Math. University of Notre Dame 2013-2016
Current position: Tenure-track Assistant Professor, Department of Mathematics, University of Nebraska, Lincoln, Nebraska

Tian Hong, Ph.D., Biology, Virginia Tech. 2013-2016

Current position: Tenure-track Assistant Professor, Department of Biochemistry & Cellular and Molecular Biology, U. of Tennessee, Knoxville, Tennessee

Chunhe Li, Ph.D., Chemistry, Chinese Academy of Sciences 2015-2016
Current position, Tenure-track Assistant Professor, Young 1000 Talent Scholar, Center for Mathematical Science, Fudan University, Shanghai, China

William Holmes, Ph.D., Indiana University 2012-2014
Current position: Tenure-track Assistant Professor, Department of Physics, Vanderbilt University, Nashville, TN.

Likun Zheng, Ph.D., Mathematics, University of Minnesota 2011-2015
Current position: Data Scientist, Samsung Austin Research Center, Austin,

Jiajun Zhang, Ph.D. Sun Yat-sen University 2012-2013
Current position: Associate Professor, School of Mathematics, Sun Yat-sen U.

Lei Zhang, Ph.D., Penn. State University 2009-2012
Assistant Professor, Dept. of Mathematics City University of Hong Kong (2012-2013).
Current position: Tenured associate Professor, Young 1000 Talent Scholar, Center for Mathematics, Peking University, China

Zhenzhen Zheng, Ph.D., Ph.D. Chinese Academy of Sciences 2009-2012
Researcher, Dept. of Mathematics, City University of Hong Kong (2012-2013).
Current position: managing editor, Science China Mathematics, Science China, Press

Jiang Xie, Ph.D., Shanghai University 2011-2012
Current position: tenured Associate Professor, School of Computer Engineering and Science, Shanghai University

Anna Cai, Ph.D., University of Melbourne 2007-2011
Current position: Tenure-track Assistant Professor, U. of New South Wales, Sydney, Australia

Liming Wang, Ph.D., Rutgers University 2008-2011
Position after postdoctoral training: Tenure-track Assistant Professor at California State University, Los Angeles, CA from 2011-2015.

Hsiao-Mei Lu, Ph.D., Bioengineering, University of Illinois at Chicago 2010-2011
Current position: VP on Bioinformatics and Computational Biology, Ambry Genetics, Aliso Viejo, CA

Scott Christley, Ph.D.**,** Computer Science**,** Notre Dame University 2008-2010
First position: Research Scientist, Medical School, University of Chicago, Chicago, IL
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David Iron, Ph.D., University of British Columbia 2003-2004
Current position: Professor, Dalhousie University, Nova Scotia, Canada

Lan Pham, Ph.D., The Ohio State University. 2001-2003
Current position: Tenured Professor, Irvine Valley College, Irvine, CA.

Supervised Ph.D. Thesis (24)

Emmanuel Dollinger,PhD in Mathematical, Computational and Systems Biology, 03/202
"Analyses of immuno-oncological interactions in skin cancers"
Co-supervisor: S Atwood from Developmental & Cell Biology.

Position after PhD: Postdoc at Arthur Lander lab, UC Irvine

Yingxin Cao, PhD in Mathematical, Computational and Systems Biology 09/2023
"Deep Representation Learning for Single-cell Sequencing Data analysis"
co-supervisor with X. Xie from Computer Science
Position after PhD: Machine Learning Scientist, ShapeTX, Seattle, WA
Undergraduate: Xiamen University. China

Mathew Karikomi. PhD in Mathematical, Computational, and Systems Biology 06/2023
"Data-Augmentation in Single-cell Transcriptomics".
Position after PhD: Postdoctoral fellow, University of Michigan
Undergraduate: The Ohio State University

Honglei Ren, PhD in Mathematical, Computational, and Systems Biology 06/2023
"Modeling and Deep Learning of Cellular Transcriptome and Epigenetic Regulation"
Position after PhD: Data Scientist, ByteDance Inc, San Jose, CA.
Undergraduate: Beihang University, China

Kevin Johnston, PhD in Mathematics 08/2022
"Spatiotemporal Longitudinal Tracking and Continuous Transcriptional Variation of Neurons"
Position after PhD: Postdoc fellow at Dept. of Anatomy & Neurobiology, UCI
Undergraduate: Southern Utah University

Yutong Sha, PhD in Mathematics 03/2022
"Inference of cell fate transition from single-cell transcriptome data"
Position after PhD: Postdoctoral fellow at UCI Mathematics
Undergraduate: Nanjing University, China

Floyd Maseda, PhD in Mathematics 09/2021
"Integrating single-cell transcriptomics data with spatial imaging data"
Position after PhD: Software Research Scientist, Canon USA, Irvine
Undergraduate: The University of Southern Mississippi

Yangyang Wang, PhD in Mathematics 12/2020
"Multiscale modeling for cell fate specification during regeneration and development"
Position after PhD: Senior Algorithm Engineer (Recommender System), BIGO Technology, Guangzhou, China
Undergraduate: University of Science and Technology, China

Daniel Bergman, PhD in Mathematics 09/2020
"Mathematical modeling of cancer-immune interactions: agent-based and continuous modeling reveal novel, non-monotonic patterns"
Position after PhD: Termed Assistant Professor, Department of Mathematics, University of Michigan
Undergraduate: Cal State University, Northridge

Yuchi Qiu, PhD in Mathematics 09/2020
"Multiscale modeling for tissue patterning: growth and stochasticity"
Position after PhD: Postdoctoral fellow and lecturer, Department of Mathematics, Michigan State University
Undergraduate: Nanjing University, China

Chris Rackauckas, PhD in Mathematics 06/2018
"Simulation and Control of Biological Stochasticity"
Position after PhD: Instructor of Applied Math, Massachusetts Institute of Technology
Undergraduate: Oberlin College

Tao Peng, PhD in Mathematics 06/2017
"Data-Driven Models for Dynamics of Gene Expression and Single Cells"
Position after PhD: Postdoc, Medical School, University of Pennsylvania
Position after Postdoc (starting 2021): Scientist Pharmacometrics, Janssen Pharmaceutical Companies of Johnson & Johnson, Spring House, PA, USA
Undergraduate: Wuhan University, China

Seth Figueroa, PhD in Biomedical Engineering 06/2017
"Multiscale Modeling for Morphogenesis of healthy and Diseased Tissue"
Position after graduation: Postdoc, UC Irvine (07/2017 – 11/2018)
Current position: Data Scientist, Focus Automated Equities, New Orleans
Undergraduate: Tulane University

Catherine Ta, PhD in Mathematics 06/2017
"Multiscale Modeling of the Epithelial-Mesenchymal Transition"
Current position: Data Scientist, Databricks, SF (first job Advisor, KPMG, SF)
Undergraduate: UC Irvine

Dongyong Wang, Ph.D. 06/2014
"Numerical Methods for Reaction Diffusion Systems in High Dimensions"
Current position: Software Engineer, Google.
Undergraduate: Tsinghua University

Jeremy Ovadia, Ph.D. 06/2013
"Computational Modeling of Tissue Growth, Organization, and Patterning."
Current position: Investment Research Associate, Wilshire Associate, CA
Undergraduate: UC Irvine

Meng Chen, Ph.D. 06/2013
"Noise and Stochastic Dynamics in Biological Signaling and Patterning Systems"
Current position: Data Scientist, Intuit, San Jose, CA
Undergraduate: University of Science and Technology China

Wing-Cheong Lo, Ph.D. 06/2011
"Growth and Pattern Controls by Morphogen Gradients"
Current position: tenure-track assistant professor, City University of Hong Kong, Hong Kong, China
Undergraduate: Hong Kong University of Sceince and Technology

Yu-Yu Peng, Ph.D. 12/2011
"Multiscale Modeling of Cell Populations and Intracellular Gene Regulatory"
Current position: CEO & Co-Founder of MyYam, Inc.
Undergraduate: Sichun University, China

Su Zhao, Ph.D. 06/2011
"Computational Study of Signaling Specificity and Epigenetic Regulation"
Current position: Software Engineer, Siemens PLM Software, Cypress, CA
Undergraduate: University of Science and Technology, China

Carlo Chan, Ph.D. 06/2010
"Scaffold can Induce Bistability in Multisite Phosphorylation"
Current position: Assistant professor (Tenure-track), Irvine Valley College, CA

Seth Haney, Ph.D. 06/2010
"Specificity, Ultrasensitivity and Polarization in Yeast Cell Mating**"**
After graduation: lecture, University of San Diego, San Diego, CA
Current position: Postdoc in School of Medicine, UC San Diego

Rui Zhao, Ph.D**.** 06/2006
"Computational Analysis of Morphogen Gradients."
Position after graduation: Postdoc at Mathematical Biosciences Institute at Ohio State University, Columbus, Ohio (later declined due to health reasons).
Current position: Analyst, PayPal Inc., San Jose, CA

Myung Yun, Ph.D. 09/2003
"Numerical Simulations of Microstructure Evolution in Three-Dimensional Inhomogeneous Elastic Media."
Current position: Faculty, Department of Mathematics, East L.A. College, Los Angeles, CA. Undergraduate: UCLA

Supervised M.S. Thesis (5)

- **Xiaolan Yuan** M.S. 06/2017
"Noise attenuation in gene regulatory network"

- **Alex Gord,** M.S 12/2014
  "Computational Modeling of Epidermal Stratification Highlights the Importance of Asymmetric Cell Division for Predictable and Robust Layer Formation"
- **Yingying Li,** M.S. 12/2010
  "Stability Analysis of a Cell Lineage Model for Colonic Crypt"
- **Ryan Moore,** M.S. 06/2004
  "Spatial Effects of Scaffolds in Intra-Cellular Signaling"
  Position after graduation: Asst. V.P.; Union Bank of California, Los Angeles, CA
- **Angie Teng,** M.S. 06/2004
  "Effects of Sog on BMP Signaling"
  06/2004 Position after graduation: Aerospace Corporation, LA, California

Current Postdoctoral Fellows (11)

- **Songhao Luo**, PhD in Statistics, Sun Yat-sen University 10/2023-
- **Xiangxu Kuan**, PhD in Integrative Life Science, Peking University 10/2023-
- **Jiawen Hou,** PhD in Applied Mathematics, Fudan University 6/2023-
- **Yuchi Qiu,** PhD in Mathematics, UC Irvine 8/2023-
- **Yutong Sha**, PhD in Mathematics, UC Irvine 2022-
- **Raul Ramos**, PhD in Biology, University of California, Irvine 2021-
- **Wei Zhao,** PhD in Probability and Statistics, Peking University 2021-
- **Ben Walker**, PhD in Applied Mathematics, North Carolina U, Chapel Hill 2021-
- **Changhan He**, PhD in Applied Mathematics, Arizona State University 2021-
- **Federico Bocci**, PhD in Chemistry, Rice University 2020-
- **Axel Almet**, PhD in Mathematics, Oxford University 2020-

Current Ph.D. Students (3)

- **Eric Bourgan-Chang** (BS, UC Berkeley), MCSB 2019-
- **Xinyi Wang (**BS. UC San Diego**),** Mathematics 2019-
- **Manuel Barcenas** (BS, UC Riverside, Mathematics), MCSB 2022-

Supervised Undergraduate Student Projects (>13)

Examples

- Xingbo Fu (Junior, 2015, Math major) and Jonathan Hieu Vo (Sophomore, 2015, Biology Major). Advisor, Supervised research project: Cell fate regulation in human and murine balstomeres by simple mathematical models and statistics analysis of single-cell RNA seq data. Summer, 2015

- Jiaying Li (Junior, math major) and Daniel Gilchrist (Junor, biology major). Advisor, Supervised project: "Using imaging analysis to estimate replication and differentiation probability of stem cells during tissue growth". Summer, 2016

- "Miniscope" imaging of the brain: new hardware design and improved software analysis. 2017, a team of nine undergraduate students. UROP award.

- UCI Undergraduate Research Opportunities Program (UROP) award: Engineering a Spatiotemporally Controlled Locus that Records Clonal Histories of Cells at Single Cell Resolution". Feb. 2020, Winter quarter. Veena Y. Naveen

- Liam O'Connor, (Junior-senior, Middlebury College), 12/20-9/21 -- Mathematical analysis of neural networks in deep learning. Current: PhD Graduate Student in Mathematics, The Ohio State University, 8/2022 -

- Boxuan Li, and Yiyang Zhang (Math and Bio double majors, UCI), summer, 6-8/2022 -- Integrated data mining and mathematical modeling of cell-cell communication analysis from single-cell RNA-sequencing

*Raised **private funds to establish an endowment** to support a high school student summer program (**MathExpLR**) founded in 2018 to expand the individual supervising model – see below*

Supervised High School Student Research Projects (24)
(More details: *http://cmcb.math.uci.edu/outreach.html*)

- **Brandom Sim** (2009), Diamond Bar High School, California
  "Mathematical Modeling of Feedback Regulation in Multistage Cell Lineages."
  Winner, Science Division, 2010 Southern California Humanity and Science Symposium
  Semifinalist, 2010 Intel Science Talent Search
  College: Biotechnology, Harvard University, Class of 2015
- **Kirk Huang** (2011), Phillips Exeter Academy, New Hampshire
  "Reversible Lineages in Stem Cell Populations."
  College: Physics, Vanderbilt University, Class of 2015
- **Claire Liang** (2011), Illinois Math and Science Academy, Illinois
  "Modeling Spatial Population Dynamics of Stem Cell Lineage in Tissue Growth."
  Published paper and presented at 34th Annual International Conference of the IEEE EMBS in San Diego.
  College: Computer Science, Cornell University, Class of 2017.
- **Anthoney Tsou** (2011), University High School, Irvine CA
  "Stem Cell Behavior in Hair Follicles."
  College: Math and Computer Science, Williams College, Class of 2017
- **Cathy Sun** (2012), Oak Park High School, Thousand Oaks, CA
  "Uncovering Complex Feedback Mechanisms in Chicken Feather Development."
  Honorable Mention, Society of Women Engineers
  Runner-Up, American Petroleum Institute
  Semifinalist, 2014 Intel STS (Science Talent Search)
  Semifinalist, Yau High School Mathematical Competition
  College: Mechanical Engineering, MIT, Class of 2018
- **Carl Cai** (2013), Trabuco Hills High School, CA
  "Modeling the Growth of Stem Cells in the Intestinal Epithelium,"
  College: Applied Mathematics, UC San Diego, Class of 2018
- **Mark Huang** (2013), Phillips Exeter Academy, New Hampshire
  "Effects of Negative Feedback on Stem Cell Lineages."
  College: Physics, Vanderbilt University, Class of 2018
- **Jonathan Huang** (2014-2016), University High School, Irvine CA
  "Feedback Loops of Stem Cell Lineages."
  USA Mathematical Olympiad Qualifier (4 times)
  AIME perfect scorer (two times)
  US National Chemistry Olympiad High Honors (Top 50)
  College: Mathematics, Harvard University, Class of 2021
- **Phil Chen** (2015-2018), University High School, Irvine, CA
  "Machine Learning of mathematical model of breast cancer"
  Gold Medal, IUSD Science Fair
  USAMO Qualifier
  College: Math and Computer Science, Stanford University, Class of 2022
- **Sherry Xu** (2016), Troy High School, Fullerton, CA
  AIME Qualifier

- **Karen Chung** (1/2017-2020), Northwood High School, Irvine, CA
  Project: mathematical models and machine learning techniques to explore publicly available cancer datasets to identify cancer driver genes. Awards won:
  a) Finalist, Southern California Junior Science & Humanities Symposium, 2019
  b) Finalist, California Science Fair (CSEF), 2019
  c) 3rd place in the Physiology/Medical Biology in Orange County Fair, 2019
  d) A Special Award from American Association for Clinical Chemistry for project's "contribution to health sciences", 2019
  e) 2020 Regeneron STS (Science Talent Search) Scholar (semi-finalist). Project title: Integrating Mathematical Modeling with Machine Learning to identify Cancer Driver Genes
  d) Went to MIT for mathematics and computer science major in 2020.
- **Olivia Bobrownicki** (2018-2020), Fairmont Prep, Fullerton, CA
  Project: Determination of the Accurate Body Surface Area Formula for High School Students – data collection and formula development. Went to college at Barnard college of Columbia in 2020.
- **William Hsieh** (2019), Portola High School, Irvine, CA
  Project: Epidermal cellular heterogeneity of Merkel cells.
- **Arush Mehrotra** (2019), University High School, Irvine, CA
  Project: Data analysis of cellular states
- **Arjun Patel** (2020, summer), Junior, Troy High School, Fullerton, CA
  Project: Machine-learning of skin imaging data
- **Selene Huang** (2020, summer), Junior, Irvine High School, Irvine, CA
  Project: Deep learning human hair follicle dynamics
- **Charles Yates** (2020, summer), Freshman, University High School, Irvine, CA
  Project: Deep learning human hair follicle dynamics
- **Andy Zhu** (2020, summer), Sophomore, Northwood High School, Irvine, CA
  Project: Site specific differences in development of dermal pericytes
- **Helena Zhou** (2020, summer), Sophomore, Northwood High School, Irvine, CA
  Project: Site specific differences in development of dermal pericytes
- **Raghav Siriam** (2021, summer), Sophomore, Carmel High School, Camel-By-The-Sea, CA
  Project: Identifying transcription factors for limb development via single-cell data analysis
- **Arul Loomba** (2021, summer), Sophomore, Rancho Cucamonga High School, Rancho Cucamonga, CA
  Project: Identifying transcription factors for limb development via single-cell data analysis
- **Daniel Ko** (2022, summer), Junior, Northwood High School, Irvine, CA. Project: Integrated data mining and mathematical modeling of cell-cell communication analysis from single-cell RNA-sequencing
- **Ryan Liu** (1/2020-6/2022) starting as Sophomore, Northwood High School, Irvine, CA. Project: Machine-learning of single-cell genomics data for interplays between skin and immune. First author for Paper #182. Attending Oxford for a major in Physics (2022, fall).
- **Matthew Zhang** (1/2023-present), starting as Junior, Westlake High School, Thousand Oaks, CA. Project: Machine-learning of spatial transcriptomics data. College: UC Berkely EECS major, 2024.

Supervised visiting PhD students, collaborative PhD students, young researchers

- **Xiaolu Guo** (9/2016-8/2017) PhD candidate, Mathematics, Peking University, Beijing, China

- **Yuanren Jiang** (10/2017-4/2018) PhD candidate, Mathematics, Fudan University, Shanghai, China
- **Peijie Zou** (3/2018-10/2018), PhD candidate, Mathematics, Peking University, Beijing, China
- **Yingzhi Liu** (5/2018 – 6/2021), MD/PhD candidate, Dermatology, Xiangya Medical School, Central South University, Changsha, China. Chinses Government Scholarship for Studying Aboard.
- **Halida (Lily) Widyastuti** (2020-2021), PhD student from UCI Dept of Biological Chemistry. Collaborating Investigator for American Heart Association (AHA) predoctoral Fellowship.

CONFERENCE ORGANIZATION (34)

- **Organization Committee Members invited by NSF, The NSF-sponsored workshop on models for uncovering rules and unexpected phenomena in biology (MODULUS),** Washington DC, 8/2022
- **Fourth annual symposium – The NSF-Simons Center for Multiscale Cell Fate Research.** Irvine**,** 10/2021
- **Organization Committee Member, Society of Mathematical Biology Annual Meeting,** Riverside, June, 2021
- **Third annual symposium – The NSF-Simons Center for Multiscale Cell Fate Research.** Irvine**,** 10/2020
- **Second annual symposium – The NSF-Simons Center for Multiscale Cell Fate Research.** Irvine**,** 10/2019
- **Inaugural annual symposium – The NSF-Simons Center for Multiscale Cell Fate Research.** Irvine**,** 10/2018
- **8th International Symposium on Nonlinear Sciences and Applications.** Chair, Advisory Committee, Qingdao, China, 08/2018
- **12th *AIMS conference on Dynamical Systems, Differential Equations & Application.*** Organizer, Special Session on Mathematical Models and Computations in Systems and Quantitative Biology. Taipei, Taiwan, 07/2018
- ***Analysis of Complex Data in Biological Systems – Emphasis Year Program at NSF Mathematical Biosciences Institute (Half-year program for 2016).*** Member of Organization Committee 09/2013-2016
- **Workshop on Mathematical Biology, Beijing University,** Beijing, Co-organizer, *07/2016*
- ***A3 Workshop on Interdisciplinary Research Connecting Mathematics and Biology.*** Member of Scientific Committee 04/2016
- ***International Workshop on Mathematics in the Life and Physical Science*****,** Member of organization committee**,** Renmin University**,** Beijing, *05/2015*
- **Workshop on Systems Biology, Beijing University,** Beijing, Organizer**,** *09/2014*
- ***10th AIMS conference on Dynamical Systems, Differential Equations & Application.*** Organizer*, Special Session on Mathematical Models and Computations in Cell and Developmental biology.* Madrid, Spain, 07/2014
- ***35th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC 13).*** Track Chair for "Computational Modeling of Regenerative Medicine and Cellular Pattern Formation, Osaka, Japan. 07/2013
- **The Society for Mathematical Biology Annual Meeting and Conference.** Member of Scientific Advisory Committee, Tempe, Arizona, 06/2013
- ***The 4th International Conference on Computational and Mathematical Population Dynamics.*** Member of Organization Committee, Taiyuan, China. 05/2013
- ***34th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC 12).*** Track Chair for "Computational Modeling of Regenerative Medicine and Cellular Pattern Formation, San Diego, CA, 08/2012
- ***9th AIMS conference on Dynamical Systems, Differential Equations & Application.*** Organizer, Special Session on Mathematical Models and Computations in Cell and Developmental. Orlando, FL. 07/2012

- ***IMA Hot Topics Workshop.*** Chair of Organization Committee, Medical Device-Biological Interactions at the Material-Tissue Interface, Institute for Mathematics and Its Applications, Minneapolis, Minnesota, 09/2010
- ***2nd UCI Symposium on Mathematical Systems Biology***
  Chair of Organization Committee, "Collective Dynamics in Biological Systems" Beckman Center of National Academics of Sciences and Engineering, Irvine**,** 01/2010
  Chair of Organization Committee, "Collective Dynamics in Biological Systems"
- ***31st Annual International Conference of the IEEE in Medicine and Biology Society.*** Track Chair for "Advances in Theory and Clinical Applications of Biological Network Studies", Minneapolis, Minnesota, 09/2009
- ***SIAM Life Science Meeting***
  Member of Organizing Committee, Montreal, Canada, 08/2008
- ***1st UCI Symposium on Mathematical Systems Biology.*** Chair of Organizing Committee. "Spatial Dynamics and Cell Signaling." 03/2008
- ***International Conference on Systems Biology.*** Scientific committee member, Long Beach, CA, 10/2007
- ***Conference on Advances in Scientific Computing.***
  Organizer & Scientific Committee Member; The University of Chicago, Chicago, IL, 09/2007
- ***Mini-Symposium on Modeling and Simulation for Tissue-Level and Multicelullar Phenomena.*** Organizer**;** SIAM Conference on Life Science; Raleigh, NC, 07/2006
- ***Mini-Symposium on Bio-Mechanics of Tissues***
  Organizer**.** 15th U.S. National Congress on Theoretical and Applied Mechanics; Boulder, CO, 06/2006
- ***Conference on Biology and Mechanics: Applications of Mathematics and Computations.*** Chair of the Organization Committee; Beckman Center for National Academics; Irvine, CA, 05/2006
- ***International Conference on High Performance Computing and Applications***. Program Committee Member; Shanghai, China, 08/2004
- ***Mini-Symposium on Quantitative Studies of Complex Systems in Cell and Developmental Biology***. Organizer; 2nd SIAM Conference on the Life Sciences; Portland, OR, 07/2004
- ***•Mini-Symposium on Computational and Analysis of Interfaces in Materials.***
  Organizer; 50th SIAM Annual Meeting, 07/2002
- ***Mini-Symposium on Modeling, Analysis and Computational in Materials Science***, Organizer; 3rd SIAM meeting on Mathematical Aspects of Material Science; Philadelphia, PA, 05/2001

INVITED LECTURES

Conferences (30 Plenary/Keynote Speeches and 80 Invited Talks**)**

- Plenary speaker, Annual Meeting Society of Mathematical Biology, Seoul, 7/2024
- Invited speaker, EMBL-EBI Industry Program workshop on "Cell-cell communication analysis", Bristol Myers Squibb, Cambridge, MA, 6/2024
- Invited speaker, Workshop on "Contextualizing Cellular Physiology" organized by NIH Office of Director and the National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda, NIH 6/2024
- Invited speaker, Workshop on nonlinear analysis and applications, The University of Texas Rio Grande Valley, Edinburg, Texas, 3/2024
- Invited speaker, Southern California Systems Biology Symposium, Irvine, 3/2024
- Invited speaker, UCI Diabetes Center Symposium, UC Irvine, 11/2023
- Invited speaker, Workshop on spatial and time-resolved single-cell transcriptomics analysis, Michigan State U, East Lansing, 11/2023
- Plenary speaker, Mathematical Life Science Conference, China SIAM, Wuxi, China, 10/2023

- Plenary speaker, AI and Cell Fate Symposium, Peking U, Peking, China, 10/2023
- Symposium speaker, Symposium on Calibration and Validation of Mathematical Models for Biological Systems, ICIAM, Tokyo, 8/2023
- Invited speaker, The Multiscale Modeling Consortium meeting - Past2Future, NIH, Maryland, 6/2023
- Plenary speaker, Southern California Applied Mathematics Symposium, UCI, 4/2023
- Invited participant, Army Research Laboratory mid-term tech forecasting virtual workshop – Multiscale design of materials: projected scientific breakthroughs in 2027-2032. 12/2022
- Invited speaker, The Chemical Basis of Morphogenesis at 70. Flatiron Institute, Simons Foundation, 10/2022
- Invited Symposium speaker, Annual Meeting of European Conference on Mathematical and Theoretical Biology (ECMTB), Heidelberg, Germany, 9/2022
- Invited speaker, NSF-Sponsored workshop on the Foundations of Machine Learning and its applications for Scientific Discovery in Physical and Biological Systems, Washington DC, 6/2022
- Keynote speaker, Atlanta Workshop on Single-cell Omics, Georgia Tech, 4/2022
- Invited speaker, MathBioSys Annual Meeting, Simons Foundation, New York, 4/2022
- Invited speaker, UCI Center for Cancer Systems Biology NCI U54 center site visit, 1/2022
- Invited speaker, UCI Chao Family Cancer Center Retreat, Virtual, 1/2022
- Invited speaker, Scientific Computing with Deep Neural Networks, Machine Learning, and Multilevel Finite Element Methods, Penn State University, 11/2021
- Invited speaker, Human Cell Atlas Latin America Sigle-cell RNA-seq Data Analysis Workshop, Virtual, 4/2021
- Invited speaker, UCI and U. of Michigan joint Symposium for Skin Research, Virtual, 2/18, 2021
- Plenary speaker, Mathematical and Computational Methods in Biology, Mathematical Biosciences Institute, Virtual, 5/2020
- Invited speaker, Workshop on Nonlinear PDEs and Related Topics, Institute for Mathematical Sciences, National University of Singapore, Singapore, 12/2019
- Invited speaker, EMT International Association (TEMTIA) biennial conference, Kumamoto, Japan, 11/2019
- Plenary speaker, Seventh International Conference on Mathematical Modeling and Analysis of Populations in Biological Systems, Arizona State University, 10/2019
- Plenary speaker, Scientific Computing Meets Machine Learning and Life Sciences, Texas Tech University, 10/2019
- Keynote speaker, Brain-Inspired Intelligence Summer School, Fudan University, China, 7/2019
- Plenary speaker, A3 (Asia-Three) Workshop on Mathematical Life Sciences, Peking U., China, 5/2019
- Plenary speaker, Mathematical Biology Symposium, Chongqing U. China, 5/2019
- Invited speaker, Annual meeting on Mathematical Biology, The Simons Foundation, New York, 4/2019
- Plenary speaker, 1st Chinese Society of Indusial and Applied Mathematics – Mathematical Life Sciences section biannual meeting, Guangzhou, China, 12/2018
- Invited speaker, workshop “1010: The Maths of Biology”, Institut Mittag-Leffler, The Royal Swedish Academy of Sciences, Stockholm, Sweden, 10/2018
- Plenary speaker, 6th International Conference on Mathematical Biology, Beijing, 06/2018
- Keynote speaker, Artificial Intelligence and Biomedical Big Data, Fudan University, Shanghai, 12/2017
- Mini-symposium speaker, Quantitative Approaches to Developmental Biology, Society of Mathematical Biology, Salt Lake City, Utah, 08/2017
- Keynote Speaker: Frontiers in Mathematical Oncology, U. of Maryland, College Park, 04/2017

- Plenary speaker: 7th Advanced Study Institute on Global Healthcare Research and Education, Harvard U., Boston, 03/2017
- Invited speaker, Workshop on Modeling of Tissue Growth and Form, Mathematical Biosciences Institute, 03/2017
- Invited speaker, Interdisciplinary Workshop on Multi-scale Modeling of Complex Systems in Developmental and Plant Biology. U. of California, Riverside, 12/2016
- Invited Speaker, Workshop on Mathematical Biology, Beijing U., 7/2016
- Invited Speaker, Workshop on Analysis and Quantification of Noise Effects in Biological Systems, Huazhong University of Science and Technology, 6/2016
- Plenary Speaker, Korea SIAM annual meeting, Daejeon, Korea, 5/2016
- Plenary Speaker, A3 Workshop on Interdisciplinary Research Connecting Mathematics and Biology, Beijing, China, April, 2016
- Invited symposium speaker, SIAM meeting on mathematical aspect of material sciences, Philadelphia, 5/16
- Invited speaker, Symposium of Biodynamical Systems, South University of Science and Technology of China, Shenzhen, 03/16
- Invited Speaker, Applied Mathematics in Germinating Oncology Solutions (AMIGOS) Workshop, National Cancer Institute in collaboration with Jayne Koskinas Ted Giovanis Foundation for Health and Policy (JKTGF) and the Breast Cancer Research Foundation (BCRF) – *by invitation-only*, Bethesda, MD, 03/16
- Invited speaker, New Realm of Human Biology Workshop, U. of Tsukuba, Japan, 09/15
- Keynote speaker, UCLA Quantitative and Computational Biology Retreat, 09/15
- Invited speaker, Quantitative Biology Workshop, Peking University, 08/15
- Invited speaker, mini-symposium on Modeling and Simulations of Complex Biological Systems. 8th International Congress on Industrial and Applied Math. Beijing, 08/15
- Invited speaker, mini-symposium on Recent Development of Mathematical Models in Computational Biology. 8th International Congress on Industrial and Applied Math., Beijing, 08/15
- Invited Speaker, Forum on Scientific and Engineering Computing, Institute of Computational Mathematics and Scientific Engineering Computing, Chinese Academy of Sciences, Beijing, 06/15
- International Workshop on Mathematics in the Life and Physical Science, Renmin University, Beijing, China, 05/15
- Invited Speaker, Mathematical Approaches to Breast Cancer Initiation and Dormancy, National Cancer Institute – by invitation-only conference, Bethesda, MD, 01/15
- Invited Speaker, Focused Program on Multiscale and Simulation of Defect Problems in Materials Science, Institute for Advanced Study, Hong Kong U. of Sci. and Tech, HK, 12/14
- Invited Speaker, International Conference on Applied Math. City U. of Hong Kong, HK, 12/14
- Plenary Speaker, International Workshop on Parallel and Fast Solvers for PDE. Shanghai, 11/14
- Plenary Speaker, Workshop for Young Researchers in Mathematical Biology, Mathematical Biosciences Institute, Columbus, Ohio State University, 08/14
- Invited Speaker, mini-Symposium on modeling and numerical methods for complex systems in developmental and cell biology, SIAM Conference on the Life Sciences, 08/14
- Invited Speaker, Special session on random dynamical systems in the life sciences, 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Madrid, Spain, 07/14
- Invited Speaker, mini-Symposium on mathematical modeling of biological regeneration, 9th European Conference of Mathematical and Theoretical Biology (ECMTB), Gothenburg, Sweden. 06/14
- Invited Speaker, International Conference on Modeling and Simulation of Complex Biology Systems, Nankai University, Tianjin, China, 05/14
- Invited Speaker, Frontiers in Applied and Computational Mathematics, NJIT, 05/14

- Invited Speaker, International Congress for Chinese Mathematicians, Taipei, China, 07/13
- Invited Speaker, Workshop on Mathematical and Computational Biology, University of Science and Technology, Heifei, China, 07/13
- Seminar, Beijing Computational Science Research Center, Beijing, China, 06/13
- Keynote Speaker, The HKUST International Conference on Biomedical Engineering, Hong Kong, 01/13
- Plenary Speaker, The 19th International Conference on Neural Information Processing, Doha, Qatar, 11/12
- Mini-symposium speaker, Advances in Theory and Application of Operator Splitting Methods, SIAM Annual meeting, Minneapolis, 07/12
- Keynote Speaker, Interdisciplinary Workshop on Mathematics and Biology, Center for Optimization and Applications, Chinese Academy of Sciences, Beijing, 05/12.
- Keynote Speaker, Conference on Frontiers in Mathematical Biology, U. of Maryland, 03/12
- Invited Speaker, Workshop on "Robustness in Biological Systems", Mathematical Biosciences Institute. 02/12
- Invited Speaker, Special Session on Mathematics and Statistics in Computational Biology, AMS Annual meeting, Boston, 01/12
- Invited Speaker, Two Mini-symposiums, International Congress on Industrial and Applied Mathematics, Vancouver, Canada, 07/11
- Invited Speaker, International Conference on Applied and Computational Mathematics and Interdisciplinary Research, Nankai University, Tianjin, China, 06/11
- Invited Speaker, Symposium, AMS Sectional meeting, UNLV, Las Vegas, 04/11
- Invited Speaker (45 minutes), International Congress for Chinese Mathematicians, Beijing, China, 12/10
- Invited speaker, Mini-symposium, AMS sectional meeting, Notre Dame U. South Bend, 11/10
- Invited Symposium Speaker, SIAM Life Science Conference, Pittsburgh, 7/10
- Plenary Speaker, International Symposium on Optimization and Systems Biology, Zhangjiajie, China, 09/09
- Invited Speaker, Computational Systems Biology Workshop, Shanghai University, 09/09
- Invited Speaker, Workshop on Function and Dynamics of Biomolecules, Kavli Institute for Theoretical Physics China, Beijing, China, 07/09
- Invited Speaker, International Conference of Mathematics, Taiwan Univ. Taipei, 07/09
- Invited Speaker, Symposium on Cell signaling, SIAM Life Science Meeting, Montreal, 07/08
- Invited Speaker, Symposium on Multi-scale Modeling of Biological Systems, Annual Meeting of The Society of Mathematical Biology, Toronto, 07/08
- Invited Speaker, Symposium on Mechanisms of Positional Specification in Development, European Conference on Mathematical and Theoretical Biology, Edinburgh, Scotland, 07/08
- Keynote Speaker, Session on Computational Biology, International Conference on Computational and Experimental Engineering and Sciences, Honolulu, Hawaii, 03/08.
- Invited Speaker, Symposium on Pattern Formation, AMS annual joint meeting, San Diego, 01/08
- Invited Speaker, International Congress for Chinese Mathematicians, Hangzhou, 12/07
- Invited Speaker, Conference on Advances in Scientific Computing, The University of Chicago, 09/07
- Plenary speaker, Workshop on Modeling, Analysis and Computations for Biological Applications, Institute of Mathematical Modeling and Scientific Computing, NCTU, Taiwan, 12/06
- Invited talk, Workshop on Cells and Materials: At the Interface between Mathematics, Biology and Engineering, Arrowhead, IPAM, UCLA, 06/06

- Southwest Consortium on Mathematics in Life Science, Phoenix, ASU, 01/05
- Mini-symposium on Chemotherapy and Tumor Biology, International Conference for Mathematics in Biology and Medicine, Ann Arbor, 07/04
- Mini-symposium on Quantitative Studies of Complex Systems in Cell and Developmental Biology, 2nd SIAM Conference on the Life Sciences, Portland, 07/04
- Mini-symposium on Mathematics Inspired by Biology, AIMS' fifth International Conference on Dynamical Systems and Differential Equations, Pomona, 06/04
- Mini-symposium on Mathematical Biology, AIMS' fifth International Conference on Dynamical Systems and Differential Equations, Pomona, 06/04
- Mini-symposium on Computational Modeling of Microstructure Evolution, 4th SIAM Conference on Mathematical Aspects of Materials Sci., Los Angels, 05/04
- Workshop on Multi-scale Challenges in Soft Matter Materials, SAMSI, Research Triangle, North Carolina, 02/04
- Workshop on Mathematical Challenges Arising in Cancer Models Mathematical Biosciences Institute, OSU, 11/03
- Mini-symposium on Advances of Numerical Methods and Analysis for Interface Problems with applications, 5th International Congress on Industrial and Applied Mathematics, 07/03
- Mini-symposium on The Role of Signaling Systems in Developmental Biology, 5th International Congress on Industrial and Applied Mathematics, 07/03
- Mini-symposium on Modeling of Biological Tissues, 2nd M.I.T. Conference on Computational Fluid and Solid Mechanics, MIT, 06/03
- Workshop on Cell & Materials: at the Tissue Engineering Interface, Institute for Pure and Applied Mathematics, UCLA, 02/03
- Mini-symposium, Satellite Conference on Scientific Computing of 2002, ICM, Xi'an, China, 08/02
- Mini-symposium on Computations and Analysis of Interfaces in Materials, 50th SIAM annual meeting, 07/02
- Workshop on Multi-scale Analysis and Computation National Center for Theoretical Sciences, Taiwan, 6/02
- Barrett Memorial Lectures on "New Directions and Developments in Computational Mathematics", U. of Tennessee, 05/01
- Section on Nonlinear Waves, AMS-HK joint meeting, Hong Kong, 12/00
- Mini-symposium on Modeling, Analysis and in Materials Science 3rd SIAM meeting on mathematical aspects of material science, Philadelphia, 05/00
- Section on Nonlinear PDE, AMS Meeting at Chicago, 09/98
- Mini-symposiums in SIAM Annual Meeting at Toronto, 07/98
- Mini-symposiums, 2nd SIAM meeting on mathematical aspects of material science, Philadelphia, 05/97

Colloquium & Seminars (92 colloquiums and 81 seminars)

- Seminar, AI for Sciences, Dept of Applied Math, Brown University, Rhode Island, 5/2024
- Colloquium, School of Math & Statistics, Shanxi Normal University, Xian, China, 4/2024
- Distinguished lecture, School of Math Sciences, Shenzhen U, Shenzhen, China, 4/2024
- Seminar, Systems Modeling and Simulation, Translational Clinical Sciences, Pfizer, La Jola, CA 3/2024
- Colloquium, Department of Statistics, U of California, Riverside, 2/2024
- Seminar, Applied Math and Computational Sci., KAUST, Saudi Arabia, 11/2023
- Seminar, MRC Molecular and Cell Biology, University College of London, London, 9/2023
- Bioengineering & Life Science Deans Seminar, Notre Dame University, 8/2023
- Spatial Biology Seminar, Cedars Sinai Hospital Los Angeles, 7/2023

- Frontier Biology Seminar, Institute of Molecular Biology, Academia Sinica, Taipei, Taiwan, 5/2023
- Distinguished Lecture, Department of Mathematics, City U of Hong Kong, Hong Kong, 5/2023
- Colloquium, School of Mathematical Sciences, Wuhan University, 5/2023
- Seminar, Institute of Synthetic Biology, Chinese Academy of Sciences, Shenzhen, China, 4/2023
- Seminar, School of Biological Sciences, University of Hong Kong, Virtual, 4/2023
- Seminar, Center for Neural Circuit Mapping, UCI, 4/2023
- Colloquium, Frederic and Julia Wan Lecture, Department of Applied Mathematics, University of Washington, 3/2023
- Seminar, Stochastic and Multiscale Modeling and Computation, Illinois Institute of Technology, 3/2023
- Seminar, Center for Bioinformatics and Quantitative Biology, University of Illinois, Chicago, 3/2023
- Seminar, Computational Mathematics, The Ohio State University, 11/2022
- Seminar, Biomechanics and Medical Device Seminar, Mechanical and Aerospace Engineering Department, UCSD, 10/2022
- Seminar, Biological Physics/Physical Biology Virtual Seminar Series, 8/2022
- Data Science seminar, Boston Children's Hospital, Boston, MA, 8/2022 (virtual)
- Seminar Topological data analysis (TDA) and its application, School of Physical & Mathematical Sciences, Nanyang Tech University, Singapore, 5/2022 (Virtual)
- Biomedical Mathematics Colloquium, Institute for Basic Science, Korea, 3/2022 (Virtual)
- Distinguished Speaker Seminar Series – Center for Biomedical Data Science (CBDS), Yale University, 11/2021(Virtual)
- Seminar – Mathematical Biology, U. of Pennsylvania, 12/2020(Virtual)
- Colloquium – Department of Statistics, Northwestern University, 11/2020(Virtual)
- Colloquium, Pacific Institute of Mathematical Sciences (PIMS), U. of British Columbia, in joint with SIAM LS mini-symposium "Shapes, patterns and forces in tissue development", 6/2020(Virtual)
- Colloquium, The Frontier of Biomedical Research, The Xianya Medical School, Changsha, China, 12/2019
- Colloquium, The Claremont Center for the Mathematical Sciences, Pomona, 9/2019
- Seminar on stem cells, Fujian Agriculture and Forestry University, 6/2019
- Seminar on stem cells, China Agricultural University, Beijing, China, 5/2019
- Colloquium, Mathematics, Southern U. of Sci. and Technology, Shenzhen, China, 5/2019
- Colloquium, Dept. of Mathematics, U. of South Carolina, 3/2019
- Colloquium, Dept. of Mathematical Sciences, Worcester Polytechnic Institute, 2/2019
- Seminar, Scientific Computing, Southern Methodist University, 11/18
- Colloquium, Mathematical Biology, Penn State University, 9/18
- Colloquium, National Research Center on Bioinformatics, Tsinghua U, Beijing, 6/18
- Colloquium, College of Math and Statistics, Wuhan University, Wuhan, China, 6/18
- Colloquium, College of Math., China Central Normal University, Wuhan, China, 6/18
- Colloquium, College of Life Sciences, Shanghai Tech U., Shanghai, 4/18
- Seminar, Bioinformatics, Inst. of Applied Math., Chinese Academies, Beijing, 3/18
- Colloquium, Department of Mathematics, University of Maryland, College Park, 3/18
- Seminar, Systems Biology & Physical Biology, Rice University, Houston, 11/17
- Seminar, Applied Mathematics, Tufts University, Boston, 10/17
- Seminar, Center for Computational Systems Biology, Fudan University, Shanghai, 6/17
- Seminar, Cancer Center, The Ohio State University, Columbus, Ohio, 5/17
- Colloquium, Mathematical Biosciences Institute, Ohio State University, 5/17

- Seminar on Systems Physiology, Medical School, U. of Cincinnati, Cincinnati, 3/17
- Colloquium, Department of Applied Mathematics, Illinois Institute of Tech., Chicago, 3/17
- Colloquium, Department of Mathematics, Michigan State University, 2/17
- Seminar, Computational Biology, U. of Southern California, 1/17
- Seminar, Systems Biology, School of Medicine, Vanderbilt University, Nashville, 11/16
- Seminar, Mathematical Biology, Fisk University, Nashville, 11/16
- Colloquium, Department of Mathematics, Michigan State University, 09/16
- Colloquium, School of Mathematics and Statistics, Wuhan University, China, 06/16
- Colloquium, Department of Mathematical Sciences, Korea Advanced Institute of Technology, Korea, 05/16
- Colloquium, Computational Medicine, University of Texas, Austin, 04/16
- Colloquium, LeClerg Lecture, Dept. of Animal & Avian Sciences, U. of Maryland, 04/16
- Colloquium, Science at Edge, Michigan State University, 04/16
- Colloquium, Center for Nonlinear Studies (CNLS), Los Alamos National Lab. 04/16
- Colloquium, Department of Mathematics, Colorado State University, 02/16
- Colloquium, Frontier of Biology, Institute of Molecular Biology, Academia Sinica, 12/15
- Seminar, Applied Mathematics, Ohio State University, Ohio 11/15
- Seminar, Scientific Computing, Applied Mathematics, Brown University, 11/15
- Colloquium, School of Mathematics, Peking University Beijing, China 10/15
- Seminar, Key Lab on Systems Biology, Shanghai Institute for Biological Sciences, Chinese Academy of Sciences, Shanghai, 10/15
- Seminar, Cambridge-Suzhou Genomic Resource Center, Suzhou U, China 10/15
- Colloquium, Beijing Institute for Scientific Computing and Engineering, Beijing University of Technology 10/15
- Colloquium, Department of Math. & Statistics, U. of Nevada, Reno, 03/15
- Colloquium, Department of Mathematics, U. of Tennessee, Chattanooga, 02/15
- Seminar, Center for Computational Systems Biology, Fudan University, China 09/14
- Distinguished lecture, Beijing University of Technology, 09/14
- University-wide Distinguished Lecture, Sun Yat-Sen University, China 05/14
- Colloquium, School of Computer Science, Beihang University, 04/14
- Distinguished Lecture, Interdisciplinary Mathematics Institute, University of South Carolina 03/14
- Colloquium, Department of Mathematical Sciences, IUPUI, 02/14
- Colloquium, School of Computer Engineering and Science, Shanghai University, 12/13
- Applied and Computational Math. Colloquium, Department of Mathematics, Penn State University, State College, 11/13
- Colloquium, Department of Mathematical Sciences, NJIT, New Jersey, 09/13
- Colloquium, Department of Mathematics, Beijing Science and Technology University, Beijing, 07/13
- Colloquium, Department of Mathematics, UCLA, 05/13
- Colloquium, Applied Mathematics, Univ. of California, Merced, 05/13
- Colloquium, Laufer Center for Physical and Quantitative Biology and Department of Chemistry, SUNY, Stony Brook, NY, 04/13
- Colloquium, Department of Mathematics, Claremont McKenna College, 04/13
- Molecular Cell Biology and Biotechnology Seminar Series, Virginia Tech, Blacksburg, 03/13
- Colloquium, Institute of Molecular Biology, Academia Sinica, Taipei, Taiwan, 03/13
- Seminar, Systems Biology, College of Life Science, National Taiwan Univ, Taipei, Taiwan, 03/13
- Colloquium, Department of Mathematics, City University of Hong Kong, Hong Kong, 01/13

- Colloquium, College of Mathematics and Statistics, Wuhan University, Wuhan, China, 01/13
- Colloquium, Computational Science Initiative, Hong Kong University of Science and Technology, Hong Kong, 08/12
- Seminar, Interdisciplinary Research, Department of Mathematics, National Taiwan University, Taipei, 07/12
- Colloquium, Institute for Genetics and Developmental Biology, Chinese of Academy of Sciences, Beijing, 05/12
- Seminar, Scientific Computing, Peking University, Beijing, 05/12
- Seminar, Center for Systems Biology, Chinese of Academy of Sciences, Shanghai, 04/12
- Colloquium, College of Mathematics, Sun Yet-Sen University, Guangzhou, 04/12
- Colloquium, College of Mathematics, Guangzhou University, Guangzhou, 04/12
- Colloquium, Department of Mathematics, Colorado State University, 03/12
- Colloquium, Department of Mathematics, George Washington University, 03/12
- Colloquium, Department of Applied and Computational Mathematics and Statistics, U. of Notre Dame, 02/12
- Colloquium, Department of Molecular and Computational Biology, U. of Southern California, Los Angeles, 02/12
- Seminar, Bioinformatics and Systems Biology, UCSD, 11/11
- Colloquium, Department of Mathematics, California State University, Fullerton, 10/11
- Applied Math. Seminar, Dept. of Mathematics, Ohio State University, 05/11
- Colloquium, Mathematical Biosciences Institute, Ohio State U., 04/11
- Colloquium, Dept. of Applied Mathematics and Statistics, U. of California, Santa Cruz, 04/11
- Annual Symposium, Institute of Mechanics, Chinese Academy of Sciences, 12/10
- Colloquium, Institute of Sciences, Shanghai Jiaotong University, Shanghai, 12/10
- Seminar, Department of Systems Biology, Harvard Medical School, Harvard, 06/10
- Seminars, School of Life Science and School of Mathematics, Sun Yet-Sen University, 05/10
- Seminar, Center for Theoretical Biological Physics, UCSD, 04/10
- Colloquium, Department of Mathematics, University of Tennessee, Knoxville, 03/10
- Colloquium, Department of Mathematics, University of South Carolina, Columbia, 03/10
- Seminar on Systems Biology, Medical School, U. of Illinois of Chicago, Chicago, 11/09
- Colloquium, Department of Bioengineering, U. of Illinois at Chicago, Chicago, 11/09
- Seminar, Institute for Systems Medicine and Department of Mathematics, Shanghai Jiaotong University, Shanghai, 09/09
- Colloquium, School of Information Science and Technology, East China Normal University, Shanghai, 09/09
- Colloquium, Department of Mathematics, U. of Miami, 04/09
- Colloquium, Department of Mathematical Sciences, UNLV, 04/09
- Colloquium, Department of Mathematical Sciences, Worcester Polytechnic Institute, 04/09
- Seminar, Department of Mathematics, UNC-Charlotte, 03/09
- Colloquium, Department of Engineering Science and Applied Math, Northwestern U. 03/09
- Seminar, Bioengineering, U. of Illinois at Chicago, 03/09
- Colloquium, Applied Mathematics, IIT, 03/09
- Seminar, Mathematical Biology, Arizona State University, 02/09
- *Information Science and Technology Center Distinguished Lecture*, Colorado State University, 11/08
- Colloquium, Dept. of Math, Colorado State University, 11/08
- Annual Symposium, Institute of Mechanics, Chinese Academy of Sciences, 12/07

- Annual Computational & Theoretical Biology Symposium, Biomedical Engineering, Rice University, 12/07
- Seminar, Mathematical Biology, UC Davis, 11/07
- Seminar, Department of Cellular and Molecular Biology, Colorado State U. 10/07
- Seminar, School of Math., Fudan U. Shanghai, China, 07/07
- Colloquium, Zou Peiyuan Center for Applied Math. Tsinghua U. Beijing, China, 07/07
- Seminar, Department of Computational Math. Beijing Univ. Beijing, China, 07/07
- Applied Math. Seminar, Department of Math. Stanford University, 05/07
- Colloquium, Department of Mathematics, University of Central Florida, 04/07
- Colloquium, Department of Mathematics, Norte Dame University, 03/07
- PDE/Applied Mathematics Seminar, Dept. of Math., Indiana University, 01/07
- Colloquium; Dept. of Mathematics, Michigan State University, East Lansing, 10/06
- Colloquium; Dept. of Math. Science, NJIT, 09/06
- Computational Math. Seminar; Dept. of Applied Math., SUNY, Stony Brook, NY, 04/06
- Colloquium on Applied Math.; Dept. of Mathematics, Notre Dame University, 03/06
- Applied and Computational Math. Seminar; School of Math., Georgia Tech. Univ., 11/05
- Computational and Applied Math. Seminar; Dept. of Math., Iowa State Univ., Ames, IA, 09/05
- Colloquium; Dept. of Computational Math., Wuhan University, China, 06/05
- Seminar; Institute of Mechanics, Chinese Academy of Science, Beijing, China 06/05
- Colloquium; Dept. of Mathematics, The Ohio State University, 05/05
- Numerical Analysis Seminar; Dept. of Mathematics, UC-San Diego, 02/05
- Colloquium; Applied and Computational Math., Penn State University, 01/05
- Seminar; Center for Sci. Computation and Math. Modeling, Univ. of Maryland, College Park, 02/04
- Seminar; Dept. of Mechanics and Engineering Sciences, Fudan University, China 01/04
- Seminar; Dept. of Computational Mathematics, Beijing University, China, 01/04
- Seminar; Inst. for Comp. Math. and Sci. Computations., Chinese Academy of Sci., Beijing, 01/04
- Applied Math. Seminar; Dept. of Mathematics, The Ohio State University, 05/03
- Colloquium; Dept. of Mathematics, Penn State University, 04/03
- Mathematical Physics Seminar; Dept. of Mathematics, Univ. of Texas, Austin, 04/03
- Seminar; Institute for Comp. Engineering and Science (TICOM), Univ. of Texas, Austin, 04/03
- Colloquium; Dept. of Applied Math., Illinois Institute of Technology, 03/03
- Scientific Computation & Applied Math. Seminar; Dept. of Mathematics, Florida State Univ., 11/02
- Applied Math./Statistical Mech. Seminar; Institute for Advanced Study, 10/02
- PDE and Numerical Analysis Seminar; Dept. of Mathematics, Florida State University, 11/02
- Colloquium; Dept. of Mathematics, Science & Technology University of Hong Kong, 08/02
- Colloquium; Dept. of Applied and Computational Mathematics, Caltech, 05/02
- Colloquium; Dept. of Mathematics, Shenzhen University, China, 12/01
- Applied Math. Seminar; Dept. of Mathematics, The Ohio State University, 06/01
- Numerical Analysis Seminar, Dept. of Mathematics, University of California- San Diego, 06/01
- Colloquium; Dept. of Computational Mathematics, Wuhan University, China, 12/00
- Colloquium; Dept. of Mathematics, Purdue University, 11/00
- Colloquium; Dept. of Bioengineering, University of Illinois at Chicago, 09/00
- Colloquium; Dept. of Applied Mathematics, Illinois Institute of Technology, 09/00

- Numerical Analysis Seminar; Dept. of Mathematics, North Carolina State University, 08/00
- Numerical Analysis Seminar; Dept. of Mathematics, University of Maryland, 08/00
- Colloquium; Dept. of Mathematics, Purdue University, 05/00
- Colloquium; Dept. of Control and Dynamical Systems, Caltech, 04/00
- Analysis Seminar; Dept. of Mathematics, University of Southern California, 03/00
- Applied Math. Seminar; Dept. of Mathematics, University of North Carolina at Chapel Hill, 02/00
- Applied Math. Seminar; Dept. of Mathematics, The Ohio State University, 05/99
- Colloquium; Dept. of Mathematics, University of North Carolina at Chapel Hill, 02/99
- Colloquium; Dept. of Mathematics, Iowa State University, 02/99
- Colloquium; Dept. of Mathematics, Florida State University, 01/99
- Colloquium; Dept. of Mathematics, NJIT, 01/99
- Colloquium; Dept. of Mathematics, University of California, Irvine, 12/98
- Colloquium; Dept. of Mathematics, University of North Carolina at Chapel Hill, 02/98
- Applied Math. Seminar; Dept. of Mathematics, University of Chicago, 10/97
- IMA Postdoc Seminar; IMA, University of Minnesota, 03/97

News and published reviews on our work

10/2023 *Entreles Cellules Un Perpetuel Echange De Messages*, **Sciences et Avenir, French Science Magazine.**

11/15/2021 UCI interdisciplinary team receives $2 million grant to study ancestral differences in skin https://news.uci.edu/2021/11/15/uci-interdisciplinary-team-receives-2-million-grant-to-study-ancestral-differences-in-skin/

5/13/2021 Society of Mathematical Biology Twitter – #AAPIHeritageMonth feature: Qing Nie https://twitter.com/SMB_MathBiology/status/1392893580721606656

2/17/2021 UCI researchers eavesdrop on cellular conversations https://news.uci.edu/2021/02/17/uci-researchers-eavesdrop-on-cellular-conversations

1/5/2021 UCI researchers use deep learning to identify gene regulation at single-cell level novel ability could further understanding and treatment of diseases such as cancer https://news.uci.edu/2021/01/05/uci-researchers-use-deep-learning-to-identify-gene-regulation-at-single-cell-level

12/5/2020 National Science Foundation – Division of Mathematical Sciences newsletter. Researchers develop a novel deep learning method to identify gene regulation at a single-cell level. https://www.nsf.gov/mps/dms/documents/2020-11-Item7-NSF-SF-UCI.pdf

6/25/2020 New study finds use of topical cream can alleviate skin symptoms https://www.bio.uci.edu/key-signaling-pathway-in-the-pathogenesis-of-pagets-disease-identified-new-study-finds-use-of-topical-cream-can-alleviate-skin-symptoms/

4/29/2020 UCI mathematicians use machine intelligence to map gene interactions -- Technique could help to find links between lung cells under coronavirus attack

https://news.uci.edu/2020/04/29/uci-mathematicians-use-machine-intelligence-to-map-gene-interactions

9/23/2019 News on collaborative research on brain circuit in improving learning and memory

1) https://www.eurekalert.org/pub_releases/2019-09/uoc--usr092219.php
2) https://medicalxpress.com/news/2019-09-reveals-critical-role-brain-circuits.html
3) https://neurosciencenews.com/learning-memory-circuits-14964/

10/29/2018 iScience news (Cell Press) – Interdisciplinary Case Study: How Mathematicians and Biologists found Order in Cellular Noise
https://www.cell.com/iscience/fulltext/S2589-0042(18)30161-5?utm_campaign=STMJ_81464_EDITA&utm_medium=email&utm_dgroup=EDITA&utm_acid=10431097&SIS_ID=0&dgcid=STMJ_81464_EDITA&CMX_ID=&utm_in=DM388272&utm_source=AC_7

9/10/2018 Study of scales wound healing goes digital with 5-year, $3.3M NIH grant to UCI Trio.
https://news.uci.edu/2018/09/10/wound-healing-research-goes-digital-with-3-3-million-nih-grant/

5/25/2018 New research will use mathematics to solve mysteries in cell biology
https://www.news-medical.net/news/20180525/New-research-will-use-mathematics-to-solve-mysteries-in-cell-biology.aspx

2/04/2018 New UCI center to look at life by numbers
https://news.uci.edu/2018/05/24/new-uci-center-to-look-at-life-by-the-numbers/

4/30/2018 Science Daily. Researcher discovers mechanisms and epigenetic markers with implications for diseases ranging from cancers to infertility.
https://www.sciencedaily.com/releases/2018/04/180430131802.htm

7/14/2017 Hair Signaling Pathway Discovery Could be Cosmetic Breakthrough.
https://www.laboratoryequipment.com/news/2017/07/hair-signaling-pathway-discovery-could-be-cosmetic-breakthrough

7/14/2017 Hair Signaling Pathway Discovery Could be Cosmetic Breakthrough.
https://www.laboratoryequipment.com/news/2017/07/hair-signaling-pathway-discovery-could-be-cosmetic-breakthrough

7/13/2017 Study provides new insights into male pattern baldness
https://www.medicalnewstoday.com/articles/318434.php

7/11/2017 Science Daily. Study sheds light on regulation of hair growth across the entire body
https://www.sciencedaily.com/releases/2017/07/170711171634.htm

12/2017 Interview by American Society of Cell Biology on CCBS
http://youtu.be/chPJ6OdVI4o

10/2013 Interview with ACS Synthetic Biology on Noise Attenuation in Biological Switches

https://pubs.acs.org/page/asbcd6/audio/index.html