

Peng Yin

<http://molecular.systems>

Appointments

- Assistant (2010-14)/Associate (14-16)/Full (16-) Professor of Systems Biology, Harvard Medical School
- Core Faculty Member (2010-), Wyss Institute for Biologically Inspired Engineering, Harvard University

Training & education

- Postdoctoral (2005-07)/Senior Postdoctoral (2007-09) Scholar in Computer Science & Bioengineering, Caltech
- Ph.D. in Computer Science, Duke Univ., 2005
- M.S. in Molecular Cancer Biology, Duke Univ., 2000
- B.S. in Biochemistry and Molecular Biology, Peking Univ., 1998
- B.S. in Economics, Peking Univ., 1998

Selected awards

- NIH Director's PIONEER Award, 2018
- Rozenberg Tulip Award in DNA Computing, 2017
- World Economic Forum Young Scientist Award, 2014, 2015
- Inaugural ACS Synthetic Biology Young Scientist Award, 2014
- DARPA Young Faculty Award (YFA), 2011
- ONR Young Investigator Program (YIP) Award, 2011
- NSF Faculty Early Career Development (CAREER) Award, 2011
- NIH Director's New Innovator Award, 2010

Selected recent publications

- J. Kishi, T. Schaus, N. Gopalkrishnan, F. Xuan, P. Yin*. *Programmable autonomous synthesis of single-stranded DNA*. **Nature Chemistry**, 10:155-164, 2018
- D. Han, X. Qi, C.A. Myhrvold, B. Wang, M. Dai, S. Jiang, M. Bates, Y. Liu, B. An*, F. Zhang*, H. Yan*, P. Yin*, *Single-stranded DNA and RNA origami*, **Science**, 358:eaa02648, 2017
- L. L. Ong, N. Hanikel, O. K. Yaghi, C. Grun, M. T. Strauss, P. Bron, J. Lai-Kee-Him, F. Schueder, B. Wang, P. Wang, J. Y. Kishi, C.A. Myhrvold, A. Zhu, R. Jungmann, G. Bellot*, Y. Ke*, P. Yin*. *Programmable self-assembly of three-dimensional nanostructures from 10⁴ unique components*. **Nature**, 552:72-76, 2017
- A. A. Green, J. Kim, D. Ma, P. A. Silver, J. J. Collins, P. Yin*. *Complex cellular logic computation using ribocomputing devices*. **Nature**, 548:117-121, 2017
- T. E. Schaus, S. Woo, F. Xuan, X. Chen, P. Yin*. *A DNA nanoscope via auto-cycling proximity recording*, **Nature Communications**, 8:696, 2017
- M. Dai, R. Jungmann, P. Yin*, *Optical imaging of individual biomolecules in densely packed clusters*. **Nature Nanotechnology**, 11:798-807, 2016.
- R. Jungmann, M.S. Avendano, M. Dai, J.B. Woehrstein, S.S. Agasti, Z. Feiger, A. Rodal, P. Yin*, *Quantitative super-resolution imaging with qPAINT using transient binding analysis*. **Nature Methods**, 13:439-442, 2016.
- W. Sun, E. Boulais, Y. Hakobyan, W. Wang, A.X. Guan, M. Bathe*, P. Yin*, *Casting inorganic structures with DNA molds*. **Science**, 346:1258361, 2014.
- A. Green, P. Silver, J. Collins and P. Yin*. *Toehold switches enable wide dynamic range and highly orthogonal regulation of gene expression*. **Cell**, 159:940-954, 2014.
- R. Iinuma[†], Y. Ke[†], R. Jungmann[†], T. Schlichthaerle, J.B. Woehrstein, and P. Yin*, *Polyhedra Self-Assembled from DNA Tripods and Characterized by 3D DNA-PAINT*. **Science**, 344:65-69, 2014.
- R. Jungmann, M.S. Avendano, J.B. Woehrstein, M. Dai, W.M. Shih, P. Yin*. *Multiplexed 3D cellular super-resolution imaging with DNA-PAINT and Exchange-PAINT*. **Nature Methods**, 11:313-318, 2014.
- Y. Ke, L. Ong, W. Shih, and P. Yin*, *Three-Dimensional Structures Self-Assembled from DNA Bricks*. **Science**, 338:1177-1183, 2012.
- B. Wei, M. Dai, and P. Yin*. *Complex Shapes Self-Assembled from Single-Stranded DNA Tiles*, **Nature**, 485:623-626, 2012.
- D.Y. Zhang*, S.X. Chen, and P. Yin*. *Optimizing Nucleic Acids Hybridization Specificity*. **Nature Chemistry**, 4:208-214, 2012.

Translation

- Co-Founder, Director, **Ultivue, Inc.** (<http://ultivue.com>), 2015-;
- Co-Founder, Director, **NuProbe Global** (<http://nuprobe.com>), 2016-

Misc

- See media coverage of our work at <http://molecular.systems/media.html>

Research narrative: Molecular programming with DNA/RNA

My research lies at the interface of information science, molecular engineering, and biology, and focuses on engineering information directed nucleic acid (DNA/RNA) structures and devices, and exploiting them to do useful molecular work (Fig. 1).

We recently invented a general framework for programming the self-assembly of short synthetic DNA strands into prescribed target shapes or demonstrating their prescribed dynamic behavior (e.g., assemble, move, and compute). We demonstrated the modular construction of sophisticated 1D (*Science*, 321:824, 2008), 2D (*Nature*, 485:623, 2012), 3D (*Science*, 338:1177, 2012; *Science*, 344:65, 2014), and crystal (*Nature Chemistry*, 6:994, 2014) structures with nanometer precision. Using reconfigurable DNA hairpin bricks, we demonstrated diverse, dynamic behavior such as catalytic circuits, triggered assembly, and autonomous locomotion (*Nature*, 451:318, 2008). We extended the modular self-assembly framework of DNA bricks beyond molecular scale, and showed DNA directed self-assembly of mesoscale hydrogel bricks into complex architectures (*Nature Communications*, 4:2275, 2013).

By interfacing these nucleic acid nanostructures with functional molecules (e.g. fluorophores, proteins, inorganics, living cells), we are developing a diverse range of applications. (1) Barcoding and imaging life with DNA. Using programmable fluorescent DNA probes (*Nature Methods*, 11:313, 2014; *Science* 344:65, 2014), we developed a highly multiplexed ($>10\times$), precisely quantitative ($>90\%$ precision), and ultra-high resolution (sub-5 nm) optical imaging method, and engineered geometrically encoded fluorescent barcodes for highly multiplexed single-molecule imaging (*Nature Chemistry*, 4:832-839, 2012). (2) Probing and programming life with DNA/RNA. We constructed robust and ultra-specific DNA probes for detecting single-base changes in a single-stranded DNA/RNA target (*Nature Chemistry*, 4:208, 2012). We developed RNA nano-devices as de-novo-designed synthetic gene regulators with unprecedented wide dynamic range and high orthogonality, and demonstrated their utility in living cells (*Cell*, 159:925, 2014) and on paper devices (*Cell*, 159:940, 2014). (3) DNA-directed nano-foundries. We developed diverse strategies for producing inorganic materials with arbitrarily prescribed 2D (e.g. using graphene [*Nature Communications*, 4:1663, 2013], silicon dioxides [*JACS*, 135:6778, 2013]) and 3D shapes (e.g. using silver, gold [*Science*, 346:1258361, 2014]).

Such **digitally programmable molecular technology** represents an emerging revolution that has the potential to match the impact of the electronic information technology. By introducing sophisticated digital programmability into molecular-scale engineering and technology, it has the potential to transform diverse scientific disciplines and seed future industries.

Information

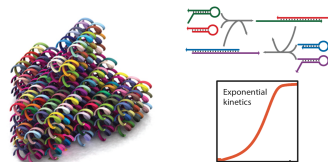
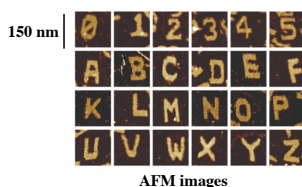
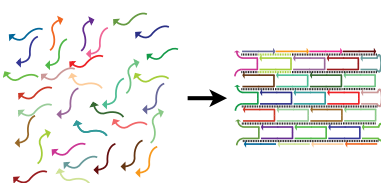
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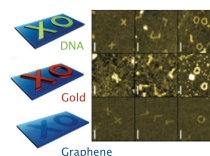
Programming structures & dynamics



Nature 2008 [P1], *Science* 2008 [P2],
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Science 2014 [P18], *Nature Chem.* 2014 [P21],
Nature Comm. 2017 [P44], *Nature Chem.* 2017 [P45],
Nature 2017 [P47], *Science* 2017 [P48]

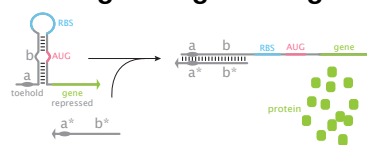
Function

Programming inorganics



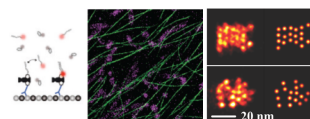
Nature Comm. 2013 [P8], *Science* 2014 [P24]

Probing & Programming biology



Nature Chemistry 2012 [P3],
Cell 2014 [P22], *Cell* 2014 [P23], *Nature* 2017 [P41]

Programming light



Nat. Chem. 2012 [P5],
Nat. Methods 2014 [P15], *Science* 2014 [P18],
Nat. Methods 2016 [P32], *Nat. Nanotech* 2016 [P33],
Sci. Adv. 2017 [P40], *Nat. Comm.* 2017 [P46], *PNAS* 2018 [P50]

Figure 1: **Digitally programmable molecular technology with DNA/RNA**. See Paper x (Publications section) at <http://molecular.systems> for more details of [P. x].

Education and Training

- Senior Postdoctoral Scholar (2007 - 2009), Postdoctoral Scholar (2005 - 2007), California Institute of Technology.
- Ph.D. in Computer Science, Duke University, 2005.
- M.S. in Molecular Cancer Biology, Duke University, 2000.
- B.S. in Biochemistry and Molecular Biology, Peking University, 1998.
- Bachelor of Economics, Peking University, 1998.

Academic Appointments

- Assistant (2010-14)/Associate (14-16)/Full (16-) Professor, Department of Systems Biology, Harvard Medical School.
- Core Faculty Member, Wyss Institute for Biologically Inspired Engineering, Harvard University (2010-).

Other Appointments

- Scientific Founder, Board of Directors, Consultant, Ultivue, Inc. (2015-)
- Co-Founder, Director, NuProbe Global (2016-)

Awards

1. NIH Director's Pioneer Award, 2018
2. Rozenberg Tulip Award in DNA Computing, 2017
3. World Economic Forum Young Scientist Award, 2015
4. Blavatnik National Awards for Young Scientists, Finalist, 2015
5. World Economic Forum Young Scientist Award, 2014
6. Inaugural ACS Synthetic Biology Young Scientist Award, 2014
7. Blavatnik National Awards for Young Scientists, Finalist, 2014
8. NIH Transformative Research Award, 2013
9. NSF Expedition in Computing Award, 2013
10. Stewart Trust Pilot Program Award, 2011
11. DARPA Young Faculty Award (YFA), 2011
12. ONR Young Investigator Program (YIP) Award, 2011
13. NSF Faculty Early Career Development (CAREER) Award, 2011
14. NIH Director's New Innovator Award (NIA), 2010
15. Postdoctoral Fellowship, Center for Biological Circuit Design, Caltech, 2005 - 2009.
16. Best Dissertation Award, Department of Computer Science, Duke University, 2005.
17. Chinese National Award for Outstanding Overseas Students, Ministry of Education of the People's Republic of China, 2005.

18. Best Student Paper Award, Tenth International Meeting on DNA Based Computing (DNA10), 2004.
19. Graduate Fellowship, Duke University, Sep. 2000 - Aug. 2001.
20. Graduate Fellowship, Program in Cell and Molecular Biology, Duke University, Sep. 1998 - Aug. 2000.
21. All-Excellent Student Scholarship, Peking University, China, 1996.
22. Pratahana Life Science Scholarship, Peking University, China, 1995.
23. First Class Academic Merit Scholarship, Peking University, China, 1994.

Publications

(* corresponding author; † equal contribution author)

1. W. Xu, P. Yin*, M. Dai*, *Super-resolution geometric barcoding for multiplexed miRNA profiling*. **Angewandte Chemie**, DOI: 10.1002/ange.201807956, 2018
2. T. Lin, J. Yan, L. L. Ong, J. Robaszkowski, H. D. Lu, Y. Mi, P. Yin*, and B. Wei*, *Hierarchical assembly of DNA nanostructures based on four-way toehold-mediated strand displacement*. **Nano Lett.**, 18: 4791-4795. DOI: 10.1021/acs.nanolett.8b01355. 2018.
3. B. J. Beliveau, J. Y. Kishi, G. Nir, H. M. Sasaki, S. K. Saka, S. C. Nguyen, C.-t. Wu, and P. Yin. /it OligoMiner provides a rapid, flexible environment for the design of genome-scale oligonucleotide in situ hybridization probes. **Proc Natl Acad Sci USA**, 115: E2183-E2192, DOI: 10.1073/pnas.1714530115, 2018.
4. J. Kim, P. Yin*, and A. A. Green*, *Ribocomputing: Cellular Logic Computation Using RNA Devices*. **Biochemistry**, 57: 883-885, DOI: 10.1021/acs.biochem.7b01072, 2018
5. J. Kishi, T. Schaus, N. Gopalkrishnan, F. Xuan, and P. Yin, *Programmable autonomous synthesis of single-stranded DNA*. **Nature Chemistry**. 10:155-164, doi: 10.1038/nchem.2872, 2018
6. D. Han†, X. Qi†, C. Myhrvold, B. Wang, M. Dai, S. Jiang, M. Bates, Y. Liu, B. An*, F. Zhang*, H. Yan* and P. Yin*, /it Single-stranded DNA and RNA origami. **Science**, 358: eaa02648, DOI: 10.1126/science.aao2648, 2017
7. L. L. Ong, N. Hanikel, O. K. Yaghi, C. Grun, M. T. Strauss, P. Bron, J. Lai-Kee-Him, F. Schueder, B. Wang, P. Wang, J. Y. Kishi, C.A. Myhrvold, A. Zhu, R. Jungmann, G. Bellot*, Y. Ke*, and P. Yin*, *Programmable self-assembly of three-dimensional nanostructures from 10,000 unique components*. **Nature**, 552, doi: 10.1038/nature24648, 2017
8. F. Schueder, J. Lara-Guiterrez, B. Beliveau, S. Saka, H. Sasaki, J. Woehrstein, M. Strauss, H. Grabmayr, P. Yin*, and R. Jungmann*, *Multiplexed 3D super-resolution imaging of whole cells using spinning disk confocal microscopy and DNA-PAINT*. **Nature Communications**, 8, doi:10.1038/s41467-017-02028-8, 2017
9. T. E. Schaus, S. Woo, F. Xuan, X. Chen and P. Yin, *A DNA nanoscope via auto-cycling proximity recording*. **Nature Communications**, 8: 696, doi:10.1038/s41467-017-00542-3, 2017
10. B. J. Beliveau, A. N. Boettiger, G. Nir, B. Bintu, P. Yin*, X. Zhuang*, C.-t Wu*, *In situ super-resolution imaging of genomic DNA with OligoSTORM and OligoDNA-PAINT*. In: Erfle H. (eds) **Super-Resolution Microscopy. Methods in Molecular Biology**, vol 1663, 2017. Humana Press, New York, NY.
11. J. L. Werbin, M. S. Avendano, V. Becker, R. Jungmann, P. Yin*, G. Danuser* and P. K. Sorger*, *Multiplexed Exchange-PAINT imaging reveals ligand-dependent EGFR and Met interactions in the plasma membrane*. **Scientific Reports** 7: 12150, doi:10.1038/s41598-017-12257-y, 2017
12. A. A. Green†, J. Kim†, D. Ma, P. A. Silver, J. J. Collins and P. Yin, *Complex cellular logic computation using ribocomputing devices*. **Nature**, doi:10.1038/nature23271, 2017
13. J. B. Woehrstein, M. T. Strauss, L. L. Ong, B. Wei, D. Y. Zhang, R. Jungmann* and P. Yin*, *Sub-100-nm metafluorophores with digitally tunable optical properties self-assembled from DNA*. **Science Advances**. 3: e1602128, doi: 10.1126/sciadv.1602128, 2017

14. Y. Wang, J. B. Woehrstein, N. Donoghue, M. Dai, M. S. Avendano, R. C.J. Schackmann, J. Zoeller, S. S. H. Wang, P. W. Tillberg, D. Park, S. W. Lapan, E. S. Boyden, J. S. Brugge, P. S. Kaeser, G. M. Church, S. S. Agasti*, R. Jungmann*, P. Yin*, *Rapid sequential in situ multiplexing with DNA-Exchange-Imaging in Neuronal Cells and Tissues*. **Nano Letters**, DOI: 10.1021/acs.nanolett.7b02716, 2017
15. F. Schueder, M. T. Strauss, D. Hoerl, J. Schnitzbauer, T. Schlichthaerle, S. Strauss, P. Yin, H. Harz, H. Leonhardt and R. Jungmann, *Universal super-resolution multiplexing by DNA exchange*. **Angewandte Chemie**, doi: 10.1002/anie.201611729, 2017
16. S. S. Agasti, Y. Wang, F. Schueder, A. Sukumar, R. Jungmann* and P. Yin*, *DNA-barcoded labeling probes for highly multiplexed Exchange-PAINT imaging*. **Chem. Sci.**, doi: 10.1039/C6SC05420J, 2017
17. C. Myhrvold, M. Baym, N. Hanikel, L. L. Ong, J. S. Gootenberg and P. Yin, *Barcode extension for analysis and reconstruction of structures*. **Nature Communications**, 8:14698, doi:10.1038/ncomms14698, 2017
18. P. Zhan, P. K. Dutta, P. Wang, G. Song, M. Dai, S-X Zhao, Z-G Wang, P. Yin, W. Zhang, B. Ding, and Y. Ke, *Reconfigurable three-dimensional gold nanorod plasmonic nanostructures organized on DNA origami tripod*. **ACS Nano**, 11: 1172-1179, 2017
19. C. Tian, H. Kim, W. Sun, Y. Kim, P. Yin, and H. Liu, *DNA nanostructures-mediated molecular imprinting lithography*. **ACS Nano**, 11: 227-238, 2017
20. M. Dai, R. Jungmann, P. Yin*, *Optical imaging of individual biomolecules in densely packed clusters*. **Nature Nanotechnology**, Doi: 10.1038/nnano.2016.95, 2016
21. R. Jungmann, M.S. Avendano, M. Dai, J.B. Woehrstein, S.S. Agasti, Z. Feiger, A. Rodal, P. Yin*, *Quantitative super-resolution imaging with qPAINT using transient binding analysis*. **Nature Methods**, 13:439-442, 2016.
22. J. B. Knudsen, L. Liu, A. L. B. Kodal, M. Madsen, Q. Li, J. Song, J. B. Woehrstein, S. F. Wickham, M. T. Strauss, F. Schueder, J. Vinther, A. Krissanaprasit, D. Gudnason, A. A. A. Smith, R. Ogaki, A. N. Zelikin, F. Besenbacher, V. Birkedal, P. Yin, W. M. Shih, R. Jungmann, M. Dong and K. V. Gothelf, *Routing of individual polymers in designed patterns*. **Nature Nanotechnology** 10:892-898, 2015
23. M. B. Scheible, L. L. Ong, J. B. Woehrstein, R. Jungmann, P. Yin and F. C. Simmel, *A Compact DNA Cube with Side Length 10 nm*. **Small**, 11:5200-5205, 2015.
24. C. Grun, J. Werfel, D. Y. Zhang, and P. Yin, *DyNAMiC Workbench: An Integrated Development Environment for Dynamic DNA Nanotechnology*. **J. R. Soc. Interface**, 12: 20150580, 2015.
25. B. J. Believeau, A. N. Boettiger, M. S. Avendano, R. Jungmann, R. B. McCole, E. F. Joyce, C. Kim-Kiselak, F. Bantignies, C. Y. Fonseka, J. Erceg, M. A. Hannan, H. G. Hoang, D. Colognori, J. T. Lee, W. M. Shih, P. Yin, X. Zhuang and C. Wu, *Single-molecule super-resolution imaging of chromosomes and in situ haplotype visualization using Oligopaint FISH probes*. **Nature Communications** 6:7147, 2015.
26. B. Wei, M. K. Vhudzijena, J. Robaszewski, and P. Yin*, *Self-assembly of complex two-dimensional shapes from single-stranded DNA tiles*. **J. Vis. Exp.**, 99, e52486, 2015.
27. W. Sun, E. Boulais, Y. Hakobyan, W. Wang, A.X. Guan, M. Bathe*, and P. Yin*, *Casting inorganic structures with DNA molds*. **Science**, 346:1258361, 2014.
28. A.A. Green, P.A. Silver, J.J. Collins and P. Yin*. *Toehold switches enable wide dynamic range and highly orthogonal regulation of gene expression*. **Cell**, 159:940-954, 2014.
29. K. Pardee, A.A. Green, T. Ferrante, E. Cameron, A. DaleyKeyser, P. Yin, and J.J. Collins*. *Paper-based synthetic gene networks*. **Cell**, 159:940-954, 2014.
30. R. Iinuma[†], Y. Ke[†], R. Jungmann[†], T. Schlichthaerle, J.B. Woehrstein, and P. Yin*, *Polyhedra Self-Assembled from DNA Tripods and Characterized by 3D DNA-PAINT*. **Science**, 344:65-69, 2014
31. Y. Ke, L. Ong, W. Shih, and P. Yin*, *Three-Dimensional Structures Self-Assembled from DNA Bricks*. **Science**, 338:1177-1183, 2012. Note: cover story

32. B. Wei, M. Dai, and P. Yin*. *Complex Shapes Self-Assembled from Single-Stranded DNA Tiles*, **Nature**, 485:623-626, 2012.
33. P. Yin*, R.F. Hariadi, S. Sahu, H.M.T. Choi, S.H. Park, T.H. LaBean and J.H. Reif. *Programming DNA Tube Circumferences*. **Science**, 321:824-826, 2008.
34. P. Yin, H.M.T. Choi, C.R. Calvert and N.A. Pierce*. *Programming Biomolecular Self-Assembly Pathways*. **Nature**, 451:318-322, 2008.
35. R. Jungmann[†], M.S. Avendano[†], J.B. Woehrstein[†], M. Dai, W.M. Shih, P. Yin*,. *Multiplexed 3D cellular super-resolution imaging with DNA-PAINT and Exchange-PAINT*. **Nature Methods**, 11:313-318, 2014.
36. Y. Ke^{†*}, L. L. Ong[†], W. Sun[†], J. Song, M. Dong, W. M. Shih and P. Yin*. *DNA brick crystals with prescribed depth*. **Nature Chemistry**, 6:994-1002, 2014.
37. C. Lin, R. Jungmann, A.M. Leifer, C. Li, D. Levner, W. Shih*, and P. Yin*, *Sub-micrometer Geometrically Encoded Fluorescent Barcodes Self-Assembled from DNA*. **Nature Chemistry**, 4:832-839, 2012.
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39. Z. Jin, W. Sun, Y. Ke, C. Shih, G.L.C. Paulus, Q. Wang, B. Mu, P. Yin*, and M. Strano*, *Metalized DNA nanolithography for encoding and transferring spatial information for graphene patterning*. **Nature Communications**, 4:1663, 2013.
40. H. Qi, M. Ghodousi, Y. Du, C. Grun, H. Bae, P. Yin*, and A. Khademhosseini*. *DNA Directed Self-Assembly of Shape-Controlled Hydrogels*. **Nature Communications**, 4:2275, 2013
41. B. Wei, L.L. Ong, J. Chen, A. Jaffe and P. Yin. *Complex reconfiguration of DNA nanostructures*. **Angewandte Chemie**, 126:7605-7609, 2014.
42. J.P. Sadowski, C.R. Calvert, D.Y. Zhang, N.A. Pierce and P. Yin. *Developmental self-assembly of a DNA tetrahedron*. **ACS Nano**, 8:3251-3259, 2014.
43. C. Myhrvold, M. Dai, P.A. Silver and P. Yin. *Isothermal self-assembly of DNA structures under diverse and biocompatible conditions*. **Nano Letters**. 13:4242-4248, 2013
44. B. Wei, M. Dai, C. Myhrvold, Y. Ke, R. Jungmann and P. Yin. *Design space for complex DNA structures*. **J. Am. Chem. Soc.** 135:18080-8 (2013).
45. T.E. Schaus and P. Yin. *Molecular computing: In situ computation of cell identity*. **Nature Nanotechnology**. 8:546-548, 2013 (News and Views).
46. S.P. Surwade, F. Zhou, B. Wei, W. Sun, P. Yin*, and H. Liu*. *Nanoscale Growth and Patterning of Inorganic Oxides using DNA Nanostructure Templates*. **J. Am. Chem. Soc.**, 135:6778-81, 2013.
47. D. Woods, H.L. Chen, S. Goodfriend, N. Dabby, E. Winfree, P. Yin. *Active self-assembly of algorithmic shapes and patterns in polylogarithmic time*. ITCS:353-354. 2013
48. P. Yin, S. Sahu, A.J. Turberfield and J.H. Reif. *Design of Autonomous DNA Cellular Automata*. In Proc. 11th International Meeting on DNA Computing (DNA11), 2005. Lecture Notes in Computer Science, 3892:399-416, 2006.
49. S. Sahu, P. Yin and J.H. Reif. *A Self-Assembly Model of DNA Tiles with Time Dependent Glue Strength*. In Proc. 11th International Meeting on DNA Computing (DNA11), 2005. Lecture Notes in Computer Science, 3892:290-304, 2006.
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51. P. Yin and A.J. Hartemink. *Theoretical and Practical Advances in Genome Halving*. **Bioinformatics**, 21:869 - 879, 2005.
52. P.K. Agarwal, Y. Wang and P. Yin. *Lower Bound for Sparse Euclidean Spanners*. In Proc. 16th ACM-SIAM Symposium on Discrete Algorithms (SODA'05), pages 670-671, 2005.

53. Y. Tian, Y. He, Yi Chen, P. Yin and C. Mao. *A DNzyme That Walks Processively and Autonomously along a One-Dimensional Track*. *Angew. Chem. Int. Ed.*, 44:4355-4358, 2005.
54. S.H. Park, P. Yin, Y. Liu, J.H. Reif, T.H. LaBean and H. Yan. *Programmable DNA Self-Assemblies for Nanoscale Organization of Ligands and Proteins*. *Nano Letters*, 5:729-733, 2005.
55. P. Yin, A.J. Turberfield and J.H. Reif. *Designs of Autonomous Unidirectional Walking DNA Devices*. In Proc. 10th International Meeting on DNA Computing (DNA10), 2004. *Lecture Notes in Computer Science*, 3384:410-425, 2005.
56. P. Yin, A.J. Turberfield, S. Sahu and J.H. Reif. *Design of an Autonomous DNA Nanomechanical Device Capable of Universal Computation and Universal Translational Motion*. In Proc. 10th International Meeting on DNA Computing (DNA10), 2004. *Lecture Notes in Computer Science* 3384:426-444, 2005.
57. J.H. Reif, S. Sahu and P. Yin. *Compact Error-Resilient Computational DNA Tiling Assemblies*. In Proc. 10th International Meeting on DNA Computing (DNA10), 2004. *Lecture Notes in Computer Science*, 3384:293-307, 2005.
58. P. Yin, H. Yan, X.G. Daniell, A.J. Turberfield and J.H. Reif. *A Unidirectional DNA Walker That Moves Autonomously Along a Track*. *Angew. Chem. Int. Ed.*, 43:4906-4911, 2004.
59. A. Sekulic, C.C. Hudson, J.L. Homme, P. Yin, D.M. Otterness, L.M. Karnitz and R.T. Abraham. *A Direct Linkage Between the Phosphoinositide 3-Kinase-AKT Signaling Pathway and the Mammalian Target of Rapamycin in Mitogen-Stimulated and Transformed Cells*. *Cancer Research*, 60:3504 - 13, 2000.

Research Talks

Upcoming talks

1. Clinical Pathology Conference, Brigham and Women's Hospital, Boston, MA, May 28th, 2019.
2. Department of Pharmacology and Chemical Biology, Baylor College of Medicine, Houston, TX, March 12th, 2019.
3. Nanoscale Subgroup meeting, Biophysical Society Annual Meeting, Baltimore, MD, March 2nd, 2019
4. Division of Biology and Biological Engineering, CalTech, Pasadena, CA, Feb. 26th, 2019.
5. Department of Biomedical Engineering, Northwestern University, Evanston, IL, Jan. 24th, 2019.
6. Department of Chemistry, Boston College, Chestnut Hill, MA, Nov. 28th, 2018
7. Neurotechnology symposium at MIT, Cambridge, MA, Nov. 27th, 2018.
8. Boston Biology and Biotechnology Association 25th Annual Symposium, Boston, MA, Oct. 6th, 2018.

Past talks

9. Wyss Institute International Symposium on Molecular Robotics, Boston, MA, Sep. 21st, 2018.
10. Nanomedicines: From Fundamentals to Applications session, 256th American Chemical Society National Meeting, Boston, MA, Aug. 22nd, 2018.
11. Nanoscience, Nanotechnology, and Beyond symposium, 256th American Chemical Society National Meeting, Boston, MA, Aug. 21st, 2018.
12. Nucleic Acid-Based Sensors session, 256th American Chemical Society National Meeting, Boston, MA, Aug. 21st, 2018.
13. NIH High Risk High Reward Research Symposium, Bethesda, MD, June 7th, 2018.
14. Synthetic Biology USA Congress, Boston, MA, May 10th, 2018.
15. School of Life Sciences, Peking University, China, May 3rd, 2018.
16. Department of Biosystems Science and Engineering at ETH Zurich, Basel, Switzerland, Apr. 10th, 2018.
17. Spring meeting of the Swiss Chemical Society, Neuchatel, Switzerland, Apr. 6th, 2018.
18. Atomic Origami, Kirigami and Crumpling at American Physical Society March Meeting, Los Angeles, CA, March 5th, 2018.
19. Department of Biomedical Engineering, Purdue University, Feb. 27th, 2018.
20. Molecular and Cellular Biology Graduate Program, University of Massachusetts Amherst, Amherst, MA, Jan. 23rd, 2018.

21. Single-Molecule Protein Sequencing Conference, Delft, Netherlands, Dec. 12th, 2017.
22. Materials Research Society Fall Meeting, Boston, MA., Nov. 29th, 2017.
23. Distinguished Seminar Series at Department of Biomedical Engineering, Duke University, Nov. 1st, 2017.
24. Department of Biomedical Engineering, Boston University, Oct. 27th, 2017.
25. The First China Forum on Biosensors, Biochips and Nanobiotechnology (BBN China 2017), Foshan, China, Oct. 2nd, 2017.
26. The Fifth Annual Workshop on Micro- and Nanotechnologies in Medicine, Cambridge, MA, July 20th, 2017.
27. Guangzhou KingMed Diagnostics, Inc., Guangzhou, China, July 04, 2017.
28. International workshop DNA-based nanotechnology: Future trends in DNA-based nanotechnology (DNAtec17), Dresden, Germany, May 29th, 2017.
29. Gordon Research Conference on “Self-Assembly and Supramolecular Chemistry”, Les Diablerets, Switzerland, May 21st, 2017,
30. The second ISH symposium - Applications of In Situ Hybridisation in Research and Disease, Cambridge, UK, May 17th, 2017.
31. Foundation of Nanosciences (FNANO2017), Snowbird, UT, Apr. 11th, 2017.
32. BRAIN Initiative Technology Integration webinar, Feb. 27, 2017.
33. Department of Biomedical Engineering, Tufts University, Feb. 6th, 2017.
34. Elkin Lecture, Emory University, Dec. 2nd, 2016.
35. Center for Molecular Bioengineering, TU Dresden, Nov. 21st, 2016.
36. Advances in Cell Engineering, Imaging and Screening, a VIB Tools and Technologies Conference, Leuven, Belgium, Nov. 17th, 2016.
37. RNA Nanotechnology Conference, Berkshire, United Kingdom, Aug. 2nd, 2016.
38. The Fourth Annual Workshop on Micro- and Nanotechnologies in Medicine, Cambridge, MA, July 26th, 2016.
39. Gordon Research Conference on “Single Molecule Approaches to Biology”, Hong Kong, July 3rd, 2016.
40. Sino-US Synthetic Biology Workshop, Guanzhou, China, July 1st, 2016.
41. 7th international symposium on Bioanalysis, Biomedical Engineering and Nanotechnology (ISBBN 2016), Changsha, China, May 27th, 2016.
42. 3rd Materials Beyond Symposium, Shanghai, China, May 26th, 2016.
43. Worcester annual nanotech symposium (NanoWorcester), Worcester, MA, Apr. 14th, 2016.
44. Workshop on 10 years of DNA origami, Pasadena, CA, March 14th, 2016.
45. Biophysical Society 60th Annual Meeting, Los Angeles, CA, Feb. 27th, 2016.
46. Department of Bioengineering, Rice University, Houston, TX, Feb. 9th, 2016.
47. Amgen, Inc., Cambridge, MA, Nov. 10th, 2015.
48. Molecular Foundry, Lawrence Berkeley National Laboratory, Berkeley, CA, Nov. 3rd, 2015.
49. Tenth International Meeting of Institute for Translational Medicine and Therapeutics at Penn, Pennsylvania, PA, Oct. 11th, 2015.
50. Physical Sciences Symposia-2015 on Quantum Science Symposium and Crystal/Graphene Science Symposium, Cambridge, MA, Sep. 22, 2015
51. 2nd ACM International Conference on Nanoscale Computing and Communication, Boston, MA, September. 21st, 2015 [[Keynote](#)].
52. DARPA Workshop on Transient Materials, Arlington, VA, Sep. 2nd, 2015.
53. The Second Blavatnik Science Symposium, New York City, NY, Aug. 6th, 2015.
54. The Eleventh International Fab Lab Conference (Fab11), Boston, MA, Aug. 5th, 2015.
55. The Third Annual Workshop on Micro- and Nanotechnologies in Medicine, Cambridge, MA, July 28th, 2015.
56. Gordon Conference on Nucleosides, Nucleotides and Oligonucleotides, Newport, RI, July 1st, 2015.
57. Gordon Conference on Synthetic Biology, Newry, ME, June 30th, 2015.

58. Albany 2015: The 19th Conversation, Albany, NY, June 11th, 2015.
59. ECI Conference on Photonics for Biology, Medicine and Surgery, Vail, CO, June, 7th, 2015.
60. 1st Synthetic Biology Young Scholar Forum (SynBioYSF), Beijing, May 23rd, 2015 [[Keynote](#)].
61. College of Chemistry and Molecular Engineering, Beijing, May 22nd, 2015.
62. Yale Chemical Biology Symposium, New Haven, CT, May, 15th, 2015.
63. Department of Materials Science and Engineering, Northwestern University, Evanston, IL, May 12, 2015
64. First Active Matter Summit, Cambridge, MA, Apr. 24, 2015.
65. Harvard Chinese Life Sciences Annual Research Symposium, Boston, MA, March 28, 2015.
66. SPIE Photonics West BiOS, San Francisco, CA, Feb. 7th, 2015 [[Keynote](#)].
67. Frontiers in Quantitative Biology Seminar Series, Stanford University, Stanford, CA, Jan 15th, 2015.
68. Joint seminar for the Graduate Programs in Bioengineering and Pharmaceutical Sciences and Pharmacogenomics, UCSF, San Francisco, CA, Jan 13th, 2015.
69. Department of Pathology, Brigham and Women's Hospital, Boston, Dec. 16th, 2014.
70. IEEE EMBS Micro and Nanotechnology in Medicine Conference, Oahu, HI, Dec. 9th, 2014.
71. Sino-US Synthetic Biology Workshop, Tianjin, China, Dec. 6th, 2014.
72. School of Life Sciences, Tsinghua University, Beijing, China, Dec. 5th, 2014.
73. Biodynamic Optical Imaging Center, Peking University, Beijing, China, Dec. 5th, 2014.
74. Fall Symposium of the New England Society for Microscopy, Cambridge, MA, Nov. 20th, 2014.
75. Department of Physics, Columbia University, New York, NY, Nov. 10th, 2014.
76. Department of Materials Science and Engineering, Boise State University, Boise, ID, Nov. 7th, 2014.
77. Department of Chemical and Biomolecular Engineering, Lehigh University, Bethlehem, PA, Oct. 29th, 2014.
78. Naval Research Laboratory, Washington, DC, Oct. 20th, 2014.
79. Fourth U.S.-China Symposium on Nanobiology and Nanomedicine, Washington, DC, Oct. 17th, 2014.
80. Twenty Ninth Chinese Chemical Society Annual Conference, Beijing, China, Aug. 5th, 2014.
81. EITA-New Media and Bio, Cambridge, MA, July 31st, 2014.
82. Second Annual workshop on Micro- and Nanotechnologies in Medicine, Cambridge, MA, July 31st, 2014.
83. SEED2014 (Synthetic Biology, Engineering, Evolution and Design), Manhattan Beach, CA, July 14th, 2014. [[Young Investigator Award Lecture](#)].
84. Blavatnik Science Symposium, New York City, NY, July 8th, 2014.
85. Seventh world congress on biomechanics (DNA mechanics and assembly session), Boston, MA, July 6th, 2014.
86. Seventh world congress on biomechanics (Nucleic acid nanostructures session), Boston, MA, July 6th, 2014.
87. BIO International Convention, San Diego, CA, June 25th, 2014.
88. International Workshop on DNA-Based Nanotechnology: Digital Chemistry (DNATEC14), Dresden, Germany, May 5th, 2014.
89. Oncology Research Seminars, Koch Institute for Integrative Cancer Research, MIT, Cambridge, MA, Apr. 28th, 2014.
90. Foundation of Nanosciences (FNANO2014), Snowbird, UT, Apr. 16th, 2014.
91. Biological Imaging Meeting, Northwestern University, Evanston, March 28th, 2014.
92. National Academy of Sciences Frontiers of Engineering and Sciences Program, Rio de Janeiro, Brazil, March 17th, 2014.
93. Biophysics seminar, MIT, Cambridge, MA, Feb. 12th, 2014.
94. NSF Nanoscale Science and Engineering Grantees Conference: Current and Future Trends in Nanotechnology and Environment and Nanomanufacturing, Arlington, VA, Dec. 6th, 2013.
95. The Nano Area of Advance at Chalmers University of Technology, Goteborg, Sweden, Nov. 28th, 2013.
96. Fourth International Congress on Biotechnology and Genomics, Monterrey, Mexico, Nov. 21st, 2013.
97. NIH Common Fund High-Risk High-Reward Symposium, Bethesda, MD, Nov. 18th, 2013.
98. Department of Chemistry and Biotechnology, Tokyo University, Tokyo, Japan, Oct. 30th, 2013.

99. Annual Meeting of Chem-Bio Informatics Society, Tokyo, Japan, Oct. 30th, 2013.
100. Department of Chemistry, Kyoto University, Kyoto, Japan, Oct. 29th, 2013.
101. Annual Meeting of the Biophysical Society of Japan, Kyoto, Japan, Oct. 29th, 2013.
102. U.S. Army Research Office Workshop: Challenges and Opportunities in Nanomanufacturing, Raleigh, NC, Oct. 1st, 2013.
103. International Conference on DNA Computing and Molecular Programming, Tempe, Sep. 27th, 2013.
104. Symposium on Advanced Nano/Biosystems: Design, Fabrication, and Characterization, University of Illinois at Urbana-Champaign, Urbana, IL, Sep. 25th, 2013.
105. The Ninth International Fab Lab Conference, Yokohama, Japan, Aug. 21st, 2013.
106. NSF Workshop on BioMEMS and Tissue Engineering, Cambridge, July 30th, 2013.
107. NSF Workshop: Advanced Biomanufacturing, Arlington, VA. July 14, 2013.
108. The Sixth International Meeting on Synthetic Biology (SB 6.0), London, England, July 10th, 2013
109. Sino-US Synthetic Biology Workshop, Tianjin, China, June 21st, 2013
110. Fourth International Wyss Symposium: Nanotherapeutics and Diagnostics, Boston, June 6th, 2013
111. The Nanoscience Nexus - the 1st International Conference of Kavli Nanoscience Institutes, Puerto Rico, May 30th, 2013
112. Department of Chemistry, University of Arizona, Tempe, Apr. 12th, 2013
113. University of Michigan, Ann Arbor, March 13th, 2013
114. The Science of Digital Fabrication Workshop, MIT, Cambridge, March 8th, 2013
115. Frontiers of Information Science and Technology (FIST), Shanghai, China, Dec. 10th, 2012.
116. Micro and Nanoengineering in Medicine Conference, Maui, Hawaii. Best Junior Faculty Talk Award, Dec. 4th, 2012.
117. Department of Chemistry, University of Pittsburgh, Pittsburgh, Nov. 1st, 2012.
118. School of Engineering and Applied Sciences, Bioengineering seminar series, Harvard University, Cambridge, Sep. 25th, 2012.
119. Eighteenth International Meeting on DNA Computing and Molecular Programming (DNA18), Aarhus, Denmark, Aug. 14th, 2012. [Plenary talk].
120. Sino-US Synthetic Biology Workshop, Tianjin, China, Aug. 2nd, 2012.
121. Learning through research workshop, Paris, July 14th, 2012.
122. College of Engineering, Peking University, Beijing, June 12th, 2012.
123. Ninth Conference on Foundations of Nanoscience: Self-Assembled Architectures and Devices (FNANO12), Snowbird, Utah, Apr. 17th, 2012.
124. School of Engineering and Applied Sciences, Harvard University, Cambridge, Apr. 10th, 2012.
125. Department of Chemistry, Tsinghua University, Beijing, Mar. 6th, 2012.
126. NSF Molecular Programming Project Workshop, Friday Harbor, June 18th, 2011.
127. Weizmann Institute, Israel, March 14th, 2011.
128. Department of Chemistry, Brandeis University, Boston, Nov. 1st, 2010.
129. Theory Lunch, Department of Systems Biology, Harvard Medical School, Boston, May 21st, 2010.
130. Workshop on Bio-Directed Assembly, Keystone, CO, May 18th, 2010.
131. "New Directions in Synthetic Biology" Symposium, Boston, Apr. 30th, 2010.
132. "Duke Nanoscience Seminar Series", Duke University, Durham, Mar. 30th, 2010.
133. Center for Physics and Biology, Rockefeller University, New York City, Mar. 23rd, 2010.
134. Department of Systems Biology, Harvard Medical School, Boston, Mar. 3rd, 2010.
135. School of Engineering and Applied Sciences, Harvard University, Cambridge, Feb. 23rd, 2010.
136. NSF Molecular Programming Project Workshop, Oxnard, Jan. 10th, 2010.
137. Qingdao Institute of BioEnergy and Bioprocess Technology, Chinese Academy of Sciences, Qingdao, July 27th, 2009.
138. Chinese Academy of Science Workshop on DNA Nanotechnology, Beijing, July 17th, 2009.

139. Emergence in Chemical Systems 2.0 Conference, Anchorage, June 25th, 2009.
140. Center for Computational Biology and Bioinformatics, Columbia Medical School, New York City, May 22nd, 2009.
141. Dept. of Biomedical Engineering, Boston University, Boston, Apr. 10th, 2009.
142. Wyss Institute for Biologically Inspired Engineering, Dept. of Systems Biology, Harvard Medical School, Boston, Apr. 8th, 2009.
143. Wyss Institute for Biologically Inspired Engineering, School of Engineering and Applied Sciences, Harvard University, Cambridge, Apr. 7th, 2009.
144. Dept. of Electrical Engineering, Columbia University, New York City, Mar. 31st, 2009.
145. Dept. of Electrical Engineering and Computer Science, Massachusetts Institute of Technology, Cambridge, Mar. 16th, 2009.
146. Dept. of Mechanical Engineering, University of California, Santa Barbara, Mar. 2nd, 2009.
147. Dept. of Bioengineering, Rice University, Houston, Feb. 18th, 2009.
148. Dept. of Chemical and Biomolecular Engineering, Johns Hopkins University, Baltimore, Feb. 5th, 2009.
149. SBE's 2nd International Conference on Biomolecular Engineering, Santa Barbara, Jan. 21st, 2009.
150. Dept. of Chemistry, University of California, Berkeley, Dec. 11th, 2008.
151. Dept. of Electrical Engineering, University of Washington, Seattle, Dec. 1st, 2008.
152. Dept. of Computer Science, Caltech, Pasadena, Nov. 18th, 2008.
153. Dept. of Chemistry, Peking University, Beijing, China, Oct. 14th, 2008.
154. National Center for Nanoscience and Technology, Beijing, China, Oct. 14th, 2008.
155. 236th American Chemical Society (ACS) National Meeting, Philadelphia, Aug. 20th, 2008.
156. 236th American Chemical Society (ACS) National Meeting, Philadelphia, Aug. 19th, 2008.
157. Fifth Conference on Foundations of Nanoscience: Self-Assembled Architectures and Devices (FNANO5), Snowbird, Utah, April 24th, 2008.
158. Twelfth International Meeting on DNA Based Computers (DNA12), Seoul, Korea, June 7th, 2006.
159. NSF Center for Molecular Cybernetics Workshop, Ann Arbor, May 16th, 2006.
160. Third Conference on Foundations of Nanoscience: Self-Assembled Architectures and Devices (FNANO3), Snowbird, Utah, April 23rd, 2006.
161. Eleventh International Meeting on DNA Based Computers (DNA11), London, Canada, June 7th, 2005.
162. Second Conference on Foundations of Nanoscience: Self-Assembled Architectures and Devices (FNANO2), Snowbird, Utah, April 23rd, 2005.
163. First Conference on Foundations of Nanoscience: Self-Assembled Architectures and Devices (FNANO1), Snowbird, Utah, April 22nd, 2004.

Research Staff and Students Supervised

- Postdoctoral scholars:

1. Wei Sun
2. Diming Wei
3. David Zhang [*NIH K99 Postdoctoral Fellow*]
4. Tom Schaus [*Jane Coffin Childs Postdoc Fellow*]
5. Ralf Jungmann [*Humboldt Postdoctoral Fellow*]
6. Alex Green
7. Yonggang Ke
8. Xi Chen [*Jane Coffin Childs Postdoctoral Fellow*]
9. Nikhil Gopalkrishnan
10. Jie Shen
11. Dongran Han
12. Weili Wang
13. Sarit Agasti
14. Harish Soundararajan

15. Sungwook Woo [*Damon Runyon Postdoctoral Fellow*]
16. Jongmin Kim [*Wyss Director's Cross-platform Postdoctoral Fellow*]
17. Jesse Silverberg [*NIH Postdoctoral Fellow*]
18. Nicolas Garreau de Loubresse [*Human Frontier Science Program Postdoctoral Fellow*]
19. Ninning Liu
20. Brian Beliveau [*Damon Runyon Postdoctoral Fellow*]
21. Feng Xuan
22. Mael Manesse
23. Maier Avendano
24. Rizal Hariadi
25. Hiroshi Sasaki [*Uehara Memorial Foundation Postdoctoral Fellow*]
26. Sinem Saka [*Human Frontier Science Program Postdoctoral Fellow*]
27. Piotr Nowak
28. Mingjie Dai
29. Josie Kishi

Postdoc placement

1. David Zhang joined the Department of Bioengineering at Rice University as a Ted Law Jr. Assistant Professor in July 2013.
 2. Yonggang Ke joined the Department of Biomedical Engineering at Georgia Institute of Technology and Emory University as an Assistant Professor in Feb. 2014.
 3. Bryan Wei joined the School of Life Sciences in Tsinghua University as an Assistant Professor in July 2014.
 4. Ralf Jungmann joined the Max Planck Institute of Biochemistry as a group leader (equivalent to Assistant Professor) in Dec. 2014.
 5. Alex Green joined the Biodesign Institute at Arizona State University as an Assistant Professor in Jan. 2015.
 6. Sarit Agasti joined the Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), India as an Assistant Professor in Jan. 2015.
 7. Rizal Hariadi joined the Biodesign Institute at Arizona State University as an Assistant Professor in June 2016.
 8. Wei Sun joined the School of Electronics Engineering and Computer Sciences at Peking University as an Assistant Professor in June 2017.
 9. Jongmin Kim joined the Department of Life Sciences at Pohang University of Science and Technology as an Assistant Professor in May 2018.
 10. Dongran Han joined the Department of Biology at Beijing University of Chinese Medicine as an Assistant Professor in June 2018.
 11. Brian Beliveau joined the Department of Genome Sciences at the University of Washington as an Assistant Professor in September 2018.
- Graduate students:
 1. John Sadowski [*NSF Graduate Fellow*]
 2. Adam Marblestone [*Hertz Graduate Fellow*]
 3. Luvena Ong [*NSF Graduate Fellow*]
 4. Maier Avendano [*HHMI International Graduate Fellow*]
 5. Mingjie Dai [*HHMI International Graduate Fellow*]
 6. Cameron Myhrvold [*Hertz Graduate Fellow*]
 7. Yu Wang
 8. Josie Kishi [*NSF Graduate Fellow*]
 9. Weidong Xu
 10. Mike Jin
 - Research assistants: Robert Barish, Johannes Wohrstein, Joanna Robaszewski, Mengmeng Zhang, Allen Zhu
 - Undergraduate students: Casey Grun, Evan Wu, Sherrie Wang, Nick Perkons

Teaching

1. Head instructor, Biomolecular Engineering and Synthetic Biology, Systems Biology 204, Harvard University, Sept. 2016 - Dec. 2016.
2. Head instructor, Biomolecular Engineering and Synthetic Biology, Systems Biology 204, Harvard University, Sept. 2015 - Dec. 2015.
3. Head instructor, Biomolecular Engineering and Synthetic Biology, Systems Biology 204, Harvard University, Sept. 2014 - Dec. 2014.
4. Head instructor, Biomolecular Engineering and Synthetic Biology, Systems Biology 204, Harvard University, Sept. 2013 - Dec. 2013.
5. Head instructor, Biomolecular Engineering and Synthetic Biology, Systems Biology 204, Harvard University, Sept. 2012 - Dec. 2012.
6. Head instructor, Biomolecular Engineering and Synthetic Biology, Systems Biology 204, Harvard University, Sept. 2011 - Dec. 2011.
7. Instructor, Biologically Inspired Molecular Engineering, Biophysics 242r, Harvard University, Jan. 2011 - May 2011.
8. Teaching Assistant, Distributed Information Systems (graduate level), Duke University, Aug. 2002 - Dec. 2002.
9. Teaching Assistant, Software Design and Implementation (undergraduate level), Duke University, Aug. 2001 - Dec. 2001.
10. Teaching Assistant, Software Design and Implementation (undergraduate level), Duke University, Jan. 2001 - May 2001.

Services

Refereeing Service

- Journals: Science, Nature, Nature Chemistry, Nature Nanotechnology, Nature Biotechnology, Nature Materials, Nature Communications, PNAS, Journal of American Chemical Society, Angew. Chem. Int. Ed., NanoLetters, Analytical Chemistry, Nucleic Acids Research, Trends in Biotechnology, Chemistry - A European Journal, Journal of Biomolecular Structure and Dynamics, Nanoscale, Natural Computing, BioSystems, IEEE Transaction on Computers, Journal of Current Nanoscience, Theoretical Computer Science
- Conferences: International Conference on DNA Based Computers (DNA), Symposium on Discrete Algorithms (SODA), Knowledge-based Intelligent Information and Engineering Systems (KES), Workshop on Algorithms in Bioinformatics (WABI)

Conference Program Committee Service

- Chair, Organizing committee, The 21st International Conference on DNA Computing and Molecular Programming, Boston, MA, 2015.
- Chair, Program committee, The 21st International Conference on DNA Computing and Molecular Programming, Boston, MA, 2015.
- Program committee, The 20th International Conference on DNA Computing and Molecular Programming, Tokyo, Japan, 2014.
- Organizing committee, NSF Workshop: Advanced Biomanufacturing, Arlington, VA, 2013.
- Program committee, The 19th International Conference on DNA Computing and Molecular Programming, Tempe, Arizona, 2013.

- Program committee, The 18th International Conference on DNA Computing and Molecular Programming, Aarhus, Denmark, 2012.
- Session chair, Biomolecular computing, Institute of Biological Engineering (IBE) Annual Meeting, 2010.
- Organizing committee: “New Directions in Synthetic Biology” Symposium, Boston, Apr. 30th, 2010.
- Organizing committee: Foundations of Nanoscience: Self-Assembled Architectures and Devices (FNANO), 2004, 2005.

Professional Associations

- American Association for the Advancement of Science
- Sigma Xi Scientific Research Society
- Biophysical Society
- American Chemical Society
- International Society for Nanoscale Science, Computation and Engineering

Community Service & Leadership

- President, Chinese Students and Scholars Association, Duke University, May 1999 - May 2000.
- President, Class 1994, Department of Biochemistry and Molecular Biology, Peking University, China, Sep. 1995 - Sep. 1996.