

Peter K Koo

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Current Position

Cold Spring Harbor Laboratory

2019-present. Assistant Professor, Simons Center for Quantitative Biology (*primary*)

2020-present. CSHL Cancer Center Member

Affiliation

Stony Brook University

2020-present. Adjunct Faculty at the Department of Applied Math and Statistics, Laufer Center for Physical and Quantitative Biology, Graduate Program in Genetics

Education/Training

Harvard University, Howard Hughes Medical Institute

2015-2019. Postdoctoral Research Associate

Advisor: Dr. Sean R. Eddy

Yale University

2010-2015. Ph.D. Physics

2006-2008. M.S. Physics

Advisor: Dr. Simon Mochrie

Dissertation: *Novel optical-based methods and analyses for elucidating cellular mechanics and dynamics.*

Haas School of Business, University of California at Berkeley

2009-2010. Master of Financial Engineering

University of California at Berkeley

2004-2006. B.A. Physics (*High Honors*)

Preprints

30. **A Sarkar, Z Tang, C Zhou, PK Koo⁺**. Designing DNA with Tunable Regulatory Activity Using Discrete Diffusion. *bioRxiv*, 2024. (*submitted*)
29. M Thompson, M Martin, TS Olmo, **C Rajesh, PK Koo**, B Bolognesi⁺, B Lehner⁺. Interpretably deep learning amyloid nucleation by massive experimental quantification of random sequences. *bioRxiv*, 2024. (*submitted*)
28. **Z Tang, PK Koo⁺**. Evaluating the representational power of pre-trained DNA language models for regulatory genomics. *bioRxiv*, 2024. (*resubmitted*)

Peer-reviewed Publications

27. **S Toneyan, PK Koo⁺**. Interpreting Cis-Regulatory Interactions from Large-Scale Deep Neural Networks. *Nature Genetics*, 2023. (*Accepted*)
26. **E Seitz**, DM McCandlish, JB Kinney⁺, **PK Koo⁺**. Interpreting Cis-Regulatory Mechanisms from Genomic Deep Neural Networks with Surrogate Models. *Nature Machine Intelligence*, 2023.

25. **Y Yu, S Muthukumar, PK Koo⁺**. EvoAug-TF: Extending evolution-inspired data augmentations for genomic deep learning to TensorFlow. *Bioinformatics*, 2024.
24. **NK Lee, S Toneyan, Z Tang, PK Koo⁺**. Evolution-inspired augmentations improve deep learning for regulatory genomics. *Genome Biology*, 2023.
23. **A Majdandzic, C Rajesh, PK Koo⁺**. Correcting gradient-based interpretations of deep neural networks for genomics. *Genome Biology*, 2023. (Special Issue: Interpretable Deep Learning)
22. **JR Kaczmarzyk, TM Kurc, S Abousamra, R Gupta, JH Saltz, PK Koo⁺**. Evaluating histopathology transfer learning with ChampKit. *Computer Methods and Programs in Biomedicine*, 2023.
21. Y Gao, XY He, **S Toneyan, ..., PK Koo, ..., C Vakoc**. ETV6 dependency in Ewing sarcoma by antagonism of EWS-FLI1-mediated enhancer activation. *Nature Cell Biology*, 2023.
20. S Petti, N Bhattacharya, R Rao, ..., AM Rush, **PK Koo**, S Ovchinnikov. End-to-end learning of multiple sequence alignments with differentiable Smith-Waterman. *Bioinformatics*, 2022.
19. **S Toneyan^{*}, Z Tang^{*}, PK Koo⁺**. Evaluating Deep Learning for Predicting Epigenomic Profiles. *Nature Machine Intelligence*, 2022.
18. RK Kawaguchi, **Z Tang**, S Fischer, **C Rajesh, R Tripathy, PK Koo**, J Gillis⁺. Learning single-cell chromatin accessibility profiles using meta-analytic marker genes. *Briefings in Bioinformatics*, 2022.
17. **PK Koo⁺**, M Ploenzke. Improving Representations of Genomic Sequence Motifs in Convolutional Networks with Exponential Activations. *Nature Machine Intelligence*, 2021.
16. **PK Koo⁺, A Majdandzic**, M Ploenzke, P Anand, S Paul. Global Importance Analysis: A Method to Quantify Importance of Genomic Features in Deep Neural Networks. *PLOS Computational Biology*, 2021.
15. TD Somerville, Y Xu, XS Wu, S Hur, D Maia-Silva, ..., **PK Koo**, CR Vakoc. ZBED2 is an Antagonist of Interferon Regulatory Factor 1 and Modifies Cell Identity in Pancreatic Cancer. *PNAS*, 2020.
14. **PK Koo⁺**, M Ploenzke. Deep Learning for Inferring Transcription Factor Binding Sites. *Current Opinion in Systems Biology*, 2020.
13. I Rey-Suarez, BA Wheatley, **PK Koo**, ..., H Shroff A Upadhyaya. WASP Family proteins Regulate the Mobility of the B Cell Receptor During Signaling Activation. *Nature Communications*, 2020.
12. **PK Koo**, SR Eddy. Representation Learning of Genomic Sequence Motifs with Convolutional Neural Networks. *PLOS Computational Biology*, 2019.
11. S Derkarabetian, S Castillo, **PK Koo**, S Ovchinnikov, M Hedin. A Demonstration of Unsupervised Machine Learning in Species Delimitation. *Molecular Phylogenetics and Evolution*, 2019.
10. **PK Koo**, SGJ Mochrie. Systems-Level Approach to Uncovering Diffusive States and Their Transitions from Single Particle Trajectories. *Physical Review E*, 2016.
9. Y Zhao, SM Schreiner, **PK Koo**, P Colombi, SGJ Mochrie, MC King. Improved Determination of Subnuclear Position Enabled by Three Dimensional Membrane Reconstruction. *Biophysical Journal*, 2016.
8. **PK Koo^{*}**, M Weitzman^{*}, CR Sabanaygam, KL van Golen, SGJ Mochrie. Extracting Diffusive States of Rho GTPase in Live Cells: Towards In Vivo Biochemistry. *PLOS Computational Biology*, 2015.
7. SM Schreiner^{*}, **PK Koo^{*}**, Y Zhao, SGJ Mochrie, MC King. The Attachment of Chromatin to the Nuclear Envelope Supports Nuclear Mechanics. *Nature Communications*, 2015.
6. M Ciubotaru, MD Surleac, ..., **PK Koo**, E Rhoades, AJ Petrescu, DG Schatz. The Architecture of the 12RSS in V(D)J Recombination Signal and Synaptic Complexes. *Nucleic Acids Research*, 2015.
5. WS Jang, **PK Koo**, ..., SGJ Mochrie. The Static Structure and Dynamics of Cadmium Sulfide Nanoparticles within Poly(styrene-block-isoprene) Diblock Copolymer Melts. *Macromolecular Chemistry and*

Physics, 2015.

4. WS Jang, **PK Koo**, K Bryson, S Narayanan, A Sandy, TP Russell, SGJ Mochrie. Dynamics of Cadmium Sulfide Nanoparticles within Polystyrene Melts. *Macromolecules*, 2014.
3. **PK Koo***, SU Setru*, SGJ Mochrie. Active Drift Stabilization in Three Dimensions via Image Cross-Correlation. *Review of Scientific Instruments*, 2013.
2. WS Jang, **PK Koo**, ..., SGJ Mochrie. The Static and Dynamic Structure Factor of a Diblock Copolymer Melt via Small-Angle X-ray Scattering and XPCS. *Macromolecules*, 2013.
1. A Nath, **PK Koo**, E Rhoades, WM Atkins. Allosteric effects on substrate dissociation from cytochrome P450 3A4 in *nanodiscs* observed by ensemble and single-molecule fluorescence spectroscopy. *Journal of the American Chemical Society*, 2008.

* These authors contributed equally. + Senior/Corresponding Author

Non peer-reviewed publications

1. **Z Tang, S Toneyan, PK Koo⁺**. Current approaches to genomic deep learning struggle to fully capture human genetic variation. *Nature Genetics, News & Views*, 2023.

Peer-reviewed Conference/Workshop Papers

18. **C Rajesh, Z Tang, PK Koo⁺**. Revisiting initialization strategies for deep learning in regulatory genomics. *Machine Learning in Computational Biology*, 2023.
17. **Z Tang, PK Koo⁺**. Building foundational models for genomics requires rethinking large language models. *ICML Workshop on Computational Biology*, 2023.
16. **A Majdandzic*, C Rajesh*, ..., PK Koo⁺**. Selecting deep neural networks that yield consistent attribution-based interpretations for genomics. *Machine Learning in Computational Biology*, 2022. (Oral)
15. N Bhattacharya, ..., **PK Koo**, D Baker, YS Song, S Ovchinnikov. Interpreting Potts and Transformer Protein Models Through the Lens of Simplified Attention. *Pacific Symposium on Biocomputing*, 2022.
14. S Petti, N Bhattacharya, R Rao, J Dauparas, N Thomas, J Zhou, AM Rush, **PK Koo**, S Ovchinnikov. End-to-end learning of multiple sequence alignments with differentiable Smith-Waterman. *NeurIPS Workshop on Structural Biology*, 2021. (Oral)
13. **R Ghotra, PK Koo⁺**. Uncovering motif interactions from convolutional-attention networks for regulatory genomics. *NeurIPS Workshop on AI for Science*, 2021. (Oral) **Best Paper Award.**
12. **E Labelson, R Tripathy, PK Koo⁺**. Towards trustworthy explanations with gradient-based attribution methods. *NeurIPS Workshop on AI for Science*, 2021.
11. **A Majdandzic, PK Koo⁺**. Statistical correction of input gradients for black box models trained with categorical input features. *ICML Workshop on Computational Biology*, 2021. (Oral)
10. **R Ghotra, NK Lee, R Tripathy, PK Koo⁺**. Designing Interpretable Convolution-Based Hybrid Networks for Genomics. *ICML Workshop on Computational Biology*, 2021.
9. **NK Lee & PK Koo⁺**. Representation learning of genomic sequence motifs via information maximization. *ICML Workshop on Computational Biology*, 2021.
8. N Bhattacharya, N Thomas, R Rao, J Dauparas, **PK Koo**, D Baker, YS Song, S Ovchinnikov. Single Layers of Attention Suffice to Predict Protein Contacts. *ICLR Workshop on Energy Based Models*, 2020.
7. D Marshall, ..., **PK Koo⁺**, S Ovchinnikov⁺. The structure-fitness landscape of pairwise relations in generative sequence models. *NeurIPS Workshop on Machine Learning for*

Structural Biology, 2019.

6. **PK Koo**⁺, M Ploenzke. Interpreting Deep Neural Networks Beyond Attribution Methods: Quantifying the Importance of Genomic Features. *Machine Learning in Computational Biology*, 2019.
5. M Ploenzke, **PK Koo**⁺. Improving Convolutional Network Interpretability with Highly Divergent Activations. *Machine Learning in Computational Biology*, 2019.
4. D Marshall, P Greisen, H Wang, **PK Koo**⁺, S Ovchinnikov⁺. Decomposition of Covariation in Multiple Sequence Alignments with Mixture Models. *NeurIPS Workshop: Learning Meaningful Representations of Life*, 2019.
3. **PK Koo**⁺, M Ploenzke. Improving Convolutional Network Interpretability with Exponential Activations. *ICML Workshop on Computational Biology*, 2019.
2. **PK Koo**⁺, S Qian, G Kaplun, V Volf, D Kalimeris. Robust Neural Networks are More Interpretable for Genomics. *ICML Workshop on Computational Biology*, 2019.
1. J Dauparas, ..., **PK Koo**, M Nitzan, S Ovchinnikov. Unified Framework for Modeling Multivariate Distributions in Biological Sequences. *ICML Workshop on Computational Biology*, 2019.

Book Chapters

3. **PK Koo**⁺, et al. ResidualBind: Uncovering Sequence-Structure Preferences of RNA-Binding Proteins with Deep Neural Networks. *Methods in Molecular Biology: RNA Structure Prediction*, 2023.
2. **PK Koo**⁺, SGJ Mochrie⁺. Applying Perturbation Expectation-Maximization to Protein Trajectories of Rho GTPases. *Methods in Molecular Biology: Rho GTPases*, 2018.
1. A Nath, A Trexler, **PK Koo**, A Miranker, W Atkins, E Rhoades. Single-Molecule Fluorescence Spectroscopy Using Phospholipid Bilayer Nanodiscs. *Methods in Enzymology*, 2010.

Talks

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| Upcoming | Department of Biomedical Informatics Seminar, <i>University of Pittsburgh</i> , Nov 15.
Biomedical Engineering Seminar Series, <i>University of British Columbia</i> , Nov 28.
Genome Sciences Seminar Series, <i>University of Virginia</i> , Feb 5.
Biomedical Informatics Seminar Series, <i>Cincinnati Children's Hospital</i> , Feb 27.
Genetics, Genomics & Systems Biology Seminar, <i>University of Chicago</i> , Mar 4. |
| 2024 | Regulatory and Systems Biology Track, <i>Intelligent Systems for Molecular Biology Conference</i> , Jul.
Learning on Graphs & Geometry Reading Group, <i>Valence Labs</i> , Jul.
Biomedical Informatics and Data Science Seminar, <i>Yale University</i> , Jun.
Evisagenics' 10 Year Celebration, <i>CSHL</i> , Jun.
Board of Trustees meeting, <i>CSHL</i> , May.
INARI Science Seminar, <i>USA</i> , May.
Non-coding Variants Focus Group, <i>Impact of Genomic Variation on Function Consortium</i> , May.
Biomedical Data Science Weekly Seminar, <i>Stanford University, USA</i> , March.
Kipoi Webinar Series, <i>kipoi.org</i> , January.
Cold Spring Harbor Laboratory Association Annual Meeting, <i>CSHL, USA</i> , January. |
| 2023 | Intelligence: Natural, Artificial, and Synthetic, Annual Symposium of Barcelona Collaboratorium, <i>CRG Barcelona, Spain</i> , October.
New Horizons in Computational Regulatory Genomics, <i>KIPOI Summit, Germany</i> , September.
STARS STEM Camp, DNA Learning Center, <i>USA</i> , August.
Genetics Program Retreat, <i>Stony Brook University, USA</i> , March.
Laufer Center Seminar, <i>Stony Brook University, USA</i> , February. |

- 2022 Women in Science and Engineering Seminar, *Cold Spring Harbor High School*, November.
Toronto Bioinformatics Users Group (TorBUG) Seminar, *University of Toronto*, October.
CSHL-Flatiron Workshop, *Flatiron Institute*, October
- 2021 AI for Genomics Workshop Plenary Session, *New York Genome Center*, December.
QuBi Seminar, *Hunter College*, November.
CSHL Diversity Day, *CSHL*, September.
Meet a Scientist Series, *DNA Learning Center at CSHL*, June.
Bioinformatics Webinar, *NYU Tandon School of Engineering*, May.
Probabilistic Models in Genomics, *CSHL Meetings*, April.
Laufer Center Seminar, *Stony Brook University*, February.
- 2020 Special Seminar, *Inari Agriculture*, Boston, October.
Machine Learning in Computational and Systems Biology Track, *Intelligent Systems for Molecular Biology*, July.
AI Symposium, *Stony Brook University & Cold Spring Harbor Laboratory*, April.
- 2019 Population Genetics Working Group, *New York Genome Center*, November.
Laufer Center for Physical and Quantitative Biology, *Stony Brook University*, November.
Machines, Inference & Algorithms Seminar, *Broad Institute of MIT and Harvard*, May.
Quantitative Biology Series, Quantitative Biology Institute, *Harvard University*, April.
Faculty Recruitment Seminar, Department of Biomedical Engineering, *McGill University*, April.
Talks at TTIC, *Toyota Technological Institute of Chicago*, March.
Quantitative Biology Seminar, *Cold Spring Harbor Laboratory*, February.
Faculty Recruitment Seminar, Department of Bioinformatics, *University of Texas at Southwestern Medical Center*, February.
- 2018 RECOMB/ISCB Conference on Regulatory and Systems Genomics, December.
Cellular Dynamics Research Talk, Department of Molecular and Cellular Biology, *Harvard University*, October.
Special Seminar, *Freenome*, South San Francisco, CA, October.
- 2016 Cellular Dynamics Research Talk, Department of Molecular and Cellular Biology, *Harvard University*, December.
Bauer meeting, FAS Center for Systems Biology, *Harvard University*, September.
- 2015 Yale Institute for Nanoscience and Quantum Engineering Seminar, *Yale University*, October.
- 2014 Yale Institute for Nanoscience and Quantum Engineering Seminar, *Yale University*, September.
Physics of Living Systems Conference, *Ludwig Maximilian University of Munich*, Germany, July.

Grants

Active

Funding Source	Identifying #	Title	Role	Dates	Amount (including indirect)
NIH/NHGRI	1R01HG012131	Interpretable computational models of functional genomics data	PI	09/2022-06/2027	\$2,063,031
NIH/NIGMS	1R01GM149921	Reliable post hoc interpretations of deep learning in genomics	PI	04/2023-03/2027	\$1,536,000
NIH/NCI	1R01CA271264	Blockade of cMyc oncogenic function by pregnancy-induced alterations and remodeling of the mammary gland	Co-I	9/2023-8/2027	\$349,294

Northwell Health	2P30CA045508	Predicting suspicious pancreatic cancer activity with computer vision	PI	08/2023-08/2024	\$208,101
NIH/NCI	1R01CA290004	Biology and vulnerabilities of POU2F3+ Tuft cell-like carcinomas	Co-I	06/2024-05/2029	\$110,195

Pending

Funding Source	Identifying No.	Title	Role	Dates	Amount (including indirect)
NIH/NHGRI	1R01HG012944	A unified probabilistic model and software implementation for analysis of nascent RNA sequencing data (percentile: 12)	Co-I	04/2024-03/2028	\$415,661

Completed

Funding Source	Identifying No.	Title	PI	Dates	Amount (including indirect)
NIH/Duke	1RF1MH125921	Discovering the molecular genetic principles of cell type organization through neurobiology-guided computation analysis of single cell multi-omic data sets	Co-I	05/2021-04/2024	\$136,467
NIH/NCI	P30 CA045508	CSHL Cancer Center support grant	subaward	01/2020-06/2021	\$155,151

Awards

2022	Top 10% Reviewer, International Conference in Machine Learning
2021	Best Paper Award, NeurIPS Workshop on AI for Science
2015	Data Science Fellowship, Data Incubator (declined)
2015	Health Data Science Fellowship, Insight (declined)
2006	Berkeley Physics Undergraduate Research Scholar, UC Berkeley
2006	L. Jackson Laslett Undergraduate Physics Scholar, Department of Physics, UC Berkeley
2005	University of California Leadership Excellence through Advance Degrees Scholar, University of California Office of the President
2004	Barry Goldwater Scholar, Barry Goldwater Foundation
2004	Society of Physics Students Leadership Scholar, National Society of Physics Students
2004	Jet Propulsion Laboratory Undergraduate Scholar, NASA

Professional Service

2024	Panel Discussion Leader, Trustworthy AI in the Life Sciences, ISMB Conference.
2024	Session Chair, Machine Learning for Computational and Systems Biology, ISMB Conference.
2024	Steering Committee, ICML Workshop on AI Models in the Life and Material Sciences
2024	Ad hoc Reviewer, NIH GCAT Study Section.
2023-present	Reviewing Editor, eLife
2023-present	Editor, CSH Perspectives: <i>Machine Learning for Protein Science and Engineering</i>
2022-present	Area Chair, NeurIPS Workshop on AI for Science
2022-present	Editorial Board, Journal of Computational Biology
2021-present	Program Committee, Regulatory and Functional Genomics at ISMB/ECCB
2020-present	Area Chair, Machine Learning in Computational Biology
2023	Program Committee, Research in Computational Molecular Biology (RECOMB)
2022	Session Chair, International Conference on Machine Learning
2022-2023	Guest Editor, Interpretable Deep Learning, Special Issue in <i>Genome Biology</i>

2022	Program Committee, ICML Workshop on Computational Biology
2021-2022	Judge, Regeneron Long Island Science and Engineering Fair (LISEF), New York
2021	Co-Organizer, Representation Learning in Biology, Special Session at 2021 ISMB/ECCB
2021	Session Chair, Probabilistic Models in Genomics, CSHL Meetings
2021	Judge, WAC Lighting Foundation Invitational Science Fair, New York
2019	Program Committee, Machine Learning in Computational Biology

CSHL Service

2024–present	Faculty head, Bioinformatics Shared Resource
2024–present	Committee member, CSHL New Innovators Symposium
2023–present	Co-organizer, CSHL Faculty Advancement Committee Meeting
2023–present	Committee member, Diversity, Equity, and Cancer Center
2023–present	Committee member, Information Technology Director Candidate Search Committee
2020–present	Committee member, Faculty Development Committee Cancer Center
2022–2024	Faculty head, Cancer Center Shared Resource on Single-cell Sequencing
2023	Contributor, US Health Resources and Service Administration Grant (\$2 million awarded for CSHL's HPC equipment under the AI for Cancer Initiative)
2022	Co-organizer, CSHL–Flatiron Institute Symposium
2021	Co-organizer, NYGC–CSHL Symposium
2021	Co-organizer, AI Applications to Diseases/Fundamentals of AI Workshop

Reviewer

Journals

Nature (6), Nature Methods (3), Nature Machine Intelligence (6), Nature Computational Science (1), Nature Genetics (4), Nature Reviews Genetics (1), Nature Communications (1), Genome Research (2), PLoS Computational Biology (2), Nucleic Acids Research (3), Bioinformatics (5), Genome Biology (2), Journal of Computational Biology (2)

Conferences

Neural Information Processing Systems (NeurIPS), International Conference on Machine Learning (ICML), International Conference on Learning Representations (ICLR), Machine Learning in Computational Biology (MLCB), Intelligent Systems for Molecular Biology (ISMB), RECOMB

Workshops

NeurIPS Workshops: Machine Learning for Structural Biology, AI for Science
 ICML Workshops: Computational Biology, AI for Science
 ICLR Workshops: Deep Generative Models for Highly Structured Data

Teaching

2019–present	Lecturer, Quantitative Biology Course, Cold Spring Harbor Laboratory, Fall.
2023	Lecturer, Advanced Sequencing Technologies & Bioinformatics Analysis Course, CSHL.
2021	Course Lead, Independent Study on Bootstrap Statistics (2 SBS Students).
2021-2022	Lecturer, Rigor and Reproducibility Course, CSHL.
2020	Head Instructor, <i>Graduate-level Machine Learning Independent Study Course</i> , CSHL Laboratory, Summer. (10 SBS Students)
	Lecturer, Academic Job Search Seminar Series
2011	Head Teaching Fellow, <i>University Physics for the Life Sciences</i> , Yale University, Fall. Teaching Fellow, <i>Physics and Engineering Biology Integrated Workshop</i> , Yale University, Spring.

2010	Teaching Fellow, <i>University Physics for the Life Science</i> , Yale University s, Fall.
2008	Teaching Fellow, <i>Fundamentals of Physic</i> , Yale University, Spring.
2007	Teaching Fellow, <i>Modern Physical Measurements</i> , Yale University, Fall.
2006-2007	Teaching Fellow, <i>General Physics Laboratory</i> , Yale University.

Mentoring

Current

Postdoc:

1. Started 2023, Jessica Zhou; PhD in Bioinformatics at UC San Diego
2. Started 2023, Anirban Sarkar; previously postdoc at MIT; PhD from Computer Science at IIT Hyderabad
3. Started 2023, Alessandro Crnjar; PhD in Biophysics at Kings College, London
4. Started 2022, Evan Seitz; PhD in Biological Science at Columbia University

Graduate:

1. Started 2024, Masayaki (Moon) Nagai; PhD program in CSHL School of Biological Sciences; BA in Biochemistry and Computer Science at DePauw University.
2. Started 2024, Yijie Kang; PhD program in Genetic, Stony Brook University; BS in Biology at Sun Yat-Sen university; MS in Biology at New York University.
3. Started 2023, Kaeli Rizzo; PhD program in CSHL School of Biological Sciences; BS in Biomedical Engineering at Georgia Institute of Technology
4. Started 2022, Chandana Rajesh; PhD program in Dept. of Applied Math and Statistics, Stony Brook University; BA in Biology at Stony Brook University
5. Started 2021, Jakub Kackmarzyk; MD/PHD MSTP program, Stony Brook University; BS in Neuroscience at Union College.

Postbaccalaureate:

1. 2024-present, Nirali Somia; NSF PREP Scholar; BA in Computer Science at Washington University of Saint Louis.

High School:

1. Started 2023, Shivani Muthukumar, Commack High, Commack, NY
2. Started 2024, Alicia Barriola, Cold Spring Harbor High, Cold Spring Harbor, NY
3. Started 2024, Xiatian (Tina) Yu, Syosset High, Syosset, NY
4. Started 2024, Sophia Chen, Farragut High, Knoxville, TN

Former

Postdoc:

1. 2023-2003, Yinan Dong; PhD in Physics at UC Riverside; now research scientist at Meta.
2. 2020-2022, Rohit Tripathy; CSHL; now *staff scientist at The Jackson Laboratory*.
3. 2020-2022, Antonio Majdandzic; CSHL; now *machine learning researcher at Bloomberg LP*.

Graduate:

1. 2020-2024, Shushan Toneyan; CSHL School of Biological Sciences; now postdoc at Roche in Switzerland.
2. 2020-2024, Ziqi (Amber) Tang; CSHL School of Biological Sciences; now Research Scientist at InstaDeep.
3. 2019-2020, Matthew Ploenzke; Harvard University; now *Director, Research & Development for San Fransisco 49ers*.

Postbaccalaureate:

1. 2023-2024, Pretty Garcia; NSF PREP Scholar; BA in Molecular Biology at UCSC

Undergraduate:

1. Summer 2023, Nika Chuzhoy; undergraduate at CalTech; *now in junior year.*
2. Summer 2023, TianHao Luo; undergraduate at University of Pennsylvania; *now in senior year.*
3. Summer 2022, Phillip Zhou; Amherst College; *now in senior year.*
4. Summer 2021, Vandana Agarwala; Penn State University; *now software engineer at Flagship Pioneering.*
5. 2020-2021, Roshan Kenia; Stony Brook University; *now master's student at Columbia University.*

High School:

1. 2022-2024, Aayush Prakash, Half Hollow Hills High
2. 2023-2024, Katie Engel, Cold Spring Harbor High
3. 2021-2023, Steven (Yiyan) Yu; Syosset High; *now at Columbia University.*
4. 2022-2023, Amanda Nemshin; Cold Spring Harbor High; *now at Duke University.*
5. 2021-2022, Rohan Ghotra; Syosset High; *now at Columbia University.*
6. 2021-2022, Ethan Labelson; Friends Academy; *now at CalTech.*
7. 2020-2021, Zaara Yakub; Bethpage High; *now at Lehigh University.*

Staff:

1. 2020-2022, Nicholas Keone Lee; CSHL; *currently finishing PhD at University of Cambridge.*

Mentored while graduate student or postdoc:

1. 2018-2019, Steffan Paul; Harvard University; *now graduate student at Harvard Medical School (Advised by Debbie Marks).*
2. 2016-2018, Nicasia Beebe-Wang; Harvard University; *now graduate student at University of Washington (Advised by Su-in Lee).*
3. 2012-2014, Sagar Setru; Yale University; *now graduate student at Princeton University (Advised by Joshua Shaevitz).*

Thesis Committee

Active

1. Since 2020, Michael Passalacqua, School of Biological Sciences at CSHL (Advisor: Jesse Gillis)
2. Since 2024, Luiz Machado de Oliveira, Genetics Program at Stony Brook University (Advisor: Adam Siepel)
3. Since 2024, Kyriaki Founta, PhD at Feinstein Institutes of Medical Research (Advisor: Nyasha Chambwe)

Graduated

1. May 2024, Mo Ziyi, School of Biological Sciences at CSHL (Advisor: Adam Siepel)
2. May 2022, Jenelys Ruiz, School of Biological Sciences at CSHL (Advisor: Camila dos Santos)

External

1. August 2021, Bihua Yu, Applied Math and Statistics at Stony Brook University (Advisor: Evangelos Coutsias)
2. June 2020, Matthew Ploenzke, Biostatistics at Harvard University (Advisor: Raphael Irrizary)

Additional Experience

2019-present. Scientific Consultant. **Inari Agriculture** (Boston, MA)

2019. Consultant. **RA Capital** (Boston, MA)

2018-2019. Consultant. **Freenome** (South San Francisco, CA)

2016-2017. Consultant. **Gilde Healthcare Partners** (The Netherlands)

Summer 2005 & 2006. Summer Undergraduate Research Fellow. **Jet Propulsion Laboratory** (Pasadena, CA)
1999-2004. Communications Specialist. **United States Army Reserve** (Long Beach, CA)