

MICHAEL BAYM

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Harvard Medical School
Department of Biomedical Informatics
10 Shattuck St., Countway 303
Boston, MA 02115

Academic Appointments

Harvard Medical School

Associate Professor , Department of Biomedical Informatics	2024 – present
Assistant Professor , Department of Biomedical Informatics	2017 – 2024
Member , Laboratory of Systems Pharmacology	2017 – present
Affiliate Faculty , Department of Microbiology	2022 – present

Broad Institute of MIT and Harvard

Associate Member	2019 – present
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Rice University

Visiting Scholar in the Center for Theoretical Biological Physics	Spring 2017
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Education and Training

Harvard Medical School

Research Fellow (postdoctoral) in Systems Biology Supervisor: Roy Kishony	2009 – 2017
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Massachusetts Institute of Technology

Ph.D. in Applied Mathematics Advisor: Bonnie Berger	2009
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University of Illinois at Urbana-Champaign (UIUC)

A.M. in Mathematics	2003
B.S. in Mathematics with Highest Distinction Senior Theses in Mathematics and Chemical Biology	2002

Prizes, Awards, and Honors

Systems, Synthetic and Quantitative Biology PhD Program Mentorship Award	2022
A. Clifford Barger Excellence in Mentoring Award (HMS) (about) Harvard Medical-wide mentorship award	2021
Pew Biomedical Scholarship (about)	2020
Sloan Research Fellowship (about) in Computational and Evolutionary Molecular Biology	2020
MIT Mystery Hunt Winning Team	2019
Packard Fellowship for Science and Engineering (about)	2018

NSF Mathematical Sciences Postdoctoral Research Fellowship (about)	2009
Hertz Foundation Graduate Fellowship (about)	2004
ASEE-NDSEG Graduate Fellowship (about)	2004
Undergraduate Mathematics Major Award (UIUC Math) (about)	2002
Salma Wanna Award (UIUC Math) (about)	2001
Colgate-Palmolive Award for Undergraduate Research (UIUC)	2001
Chancellor's Scholar (UIUC) (about)	1999 – 2002

Publications

Google Scholar: <https://scholar.google.com/citations?user=AKLI09AAAAAJ>

Reviewed Articles

1. N. Quinones-Olvera*, S.V. Owen*, L.M. McCully, M.G. Marin, E.A. Rand, A.C. Fan, O.J. Martins Dosumu, K. Paul, C.E. Sanchez Castaño, J.S. Paull, R. Petherbridge, M. Baym, *Diverse and abundant phages exploit conjugative plasmids*, Nature Communications, to appear (2024)
Preprint: <https://www.biorxiv.org/content/10.1101/2023.03.19.532758>
2. A. Couce*, A. Limdi*, M. Magnan, S.V. Owen, C.M. Herren, R.E. Lenski, O. Tenaillon†, **M. Baym**†, *Changing fitness effects of mutations through long-term bacterial evolution*, Science, **383**, eadd1417 (2024)
3. A. Limdi, **M. Baym**, *Resolving deleterious and near-neutral effects requires different pooled fitness assay designs*, Journal of Molecular Evolution, **91**, 325–333 (2023)
4. A. Nyerges, S. Vinke, R. Flynn, S.V. Owen, E.A. Rand, B. Budnik, E. Keen, K. Narasimhan, J.A. Marchand, M. Baas-Thomas, M. Liu, K. Chen, A. Chiappino-Pepe, F. Hu, **M. Baym**, G.M. Church, *Swapped genetic code blocks viral infections and gene transfer*, Nature, **615**, 720–727 (2023)
5. C.L. Dulberger*, C.A. Guerrero-Bustamante*, S.V. Owen, S. Wilson, M.G. Wuo, R.A. Garlena, L.A. Serpa, D.A. Russell, J. Zhu, B.J. Braunecker, G.R. Squyres, **M. Baym**, L. Kiessling, E.C. Garner, E.J. Rubin†, G.F. Hatfull†, *Mycobacterial nucleoid-associated protein Lsr2 is required for productive mycobacteriophage infection*, Nature Microbiology, **8**, 695–710 (2023)
6. J.A. Baaijens*, A. Zulli*, I.M. Ott*, M.E. Petrone, T. Alpert, J.R. Fauver, C.C. Kalinich, C.B.F. Vogels, M.I. Breban, C. Duvallet, K. McElroy, N. Ghaeli, M. Imakaev, M. McKenzie-Bennett, K. Robison, A. Plocik, R. Schilling, M. Pierson, R. Littlefield, M. Spencer, B.B. Simen, Yale SARS-CoV-2 Genomic Surveillance Initiative, W.P. Hanage, N.D. Grubaugh†, J. Peccia†, **M. Baym**†, *Lineage abundance estimation for SARS-CoV-2 in wastewater using transcriptome quantification techniques*, Genome Biology, **23**, 1–20 (2022)
7. C. Herren, **M. Baym**, *Decreased thermal niche breadth as a trade-off of antibiotic resistance*, The ISME Journal, **16**, 1843–1852 (2022)
8. J.E. Silpe*, J.W.H. Wong*, S.V. Owen, **M. Baym**, E.P. Balskus, *The gut bacterial natural product colibactin triggers induction of latent viruses in diverse bacteria*, Nature, **603**, 315–320 (2022)
9. S.V. Owen*, N. Wenner*, C. Dulberger, E. Rodwell, A. Bowers-Barnard, N. Quinones-Olvera, D.J. Rigden, E.J. Rubin, E.C. Garner, **M. Baym**†, J.C.D. Hinton†, *Prophage-encoded phage defense proteins with cognate self-immunity*, Cell Host and Microbe, **29**, 1620–1633 (2021)
10. A.R. Rowe, F. Salimijazi, L. Trutschel, J. Sackett, O. Adesina, I. Anzai, L.H. Kugelmass, **M. Baym**, B. Barstow, *Identification of a Pathway for Electron Uptake in Shewanella oneidensis*, Communications

- Biology, **4**, 957 (2021)
11. K. Břinda, **M. Baym**[†], G. Kucherov[†], *Simplitigs as an efficient and scalable representation of de Bruijn graphs*, Genome Biology, **22**, 96 (2021)
 12. L. Kennedy-Shaffer, **M. Baym**, W.P. Hanage, *Perfect as the enemy of good: tracing transmissions with low-sensitivity tests to mitigate SARS-CoV-2 outbreaks*, The Lancet Microbe, **2**, e219–24 (2021)
 13. J. Kim, J.H. Bae, **M. Baym**, D.Y. Zhang, *Metastable Hybridization-based DNA Information Storage to Allow Rapid and Permanent Erasure*, Nature Communications, **11**, 5008 (2020)
 14. J. Qian, Z. Lu, C.P. Mancuso, H. Jhuang, R. del Carmen Barajas-Ornelas, S.A. Boswell, F.H. Ramírez-Guadiana, V. Jones, A. Sonti, K. Sedlack, L. Artzi, G. Jung, M. Arammash, M. E. Pettit, M. Melfi, L. Lyon, S. V. Owen, **M. Baym**, A.S. Khalil, P. A. Silver, D.Z. Rudner, M. Springer, *Barcoded microbial system for high-resolution object provenance*, Science, **368**, 1135–1140 (2020)
 15. D. Russ, F. Glaser, E.S. Tamar, I. Yelin, **M. Baym**, E.D. Kelsic, C. Zampaloni, A. Haldimann, R. Kishony, *Escape mutations circumvent a tradeoff between resistance to a beta-lactam and resistance to a beta-lactamase inhibitor*, Nature Communications, **11**, 2029 (2020)
 16. K. Břinda, A. Callendrello, K. C. Ma, D.R. MacFadden, T. Charalampous, R.S. Lee, L. Cowley, C. B. Wadsworth, Y. H. Grad, G. Kucherov, J. O’Grady, **M. Baym**, W.P. Hanage, *Rapid heuristic inference of antibiotic resistance and susceptibility by genomic neighbor typing*, Nature Microbiology, **5**, 455–464 (2020)
 17. R. Canals, R. R. Chaudhuri, R. E. Steiner, S.V. Owen, N. Quinones-Olvera, M. A. Gordon, **M. Baym**, M. Ibba, J. C. D. Hinton, *The fitness landscape of the African Salmonella Typhimurium ST313 strain D23580 reveals unique properties of the pBT1 plasmid*, PLOS Pathogens, **15(9)**, e1007948 (2019)
 18. I. A. Anzai, L. Shaket, O. Adesina, **M. Baym**[†], B. Barstow[†], *Rapid curation of gene disruption collections using Knockout Sudoku*, Nature Protocols, **12**, 2110–2137 (2017)
 19. D.T. Riglar, T.W. Giessen, **M. Baym**, S.J. Kerns, M.J. Niederhuber, R.T. Bronson, J.W. Kotula, G.K. Gerber, J.C. Way, P.A. Silver, *Engineered bacteria can function in the mammalian gut long-term as live diagnostics of inflammation*, Nature Biotechnology, **35**, 653–658 (2017)
 20. C. Myhrvold, **M. Baym**, N. Hanikel, L.L. Ong, J.S. Gootenberg, P. Yin, *Barcode Extension for Analysis and Reconstruction of Structures*, Nature Communications, **8**, 14698 (2017)
 21. **M. Baym**^{*}, L. Shaket, I.A. Anzai, O. Adesina, B. Barstow^{*}, *Rapid Construction of a Whole-genome Transposon Insertion Collection for Shewanella oneidensis by Knockout Sudoku*, Nature Communications, **7**, 13270 (2016)
 22. L.K. Stone, **M. Baym**, T.D. Lieberman, R. Chait, J. Clardy, R. Kishony, *Compounds that select against the tetracycline resistance efflux pump*, Nature Chemical Biology, **12**, 902–904 (2016)
 23. **M. Baym**, T.D. Lieberman, E.D. Kelsic, R. Chait, R. Gross, I. Yelin, R. Kishony, *Spatiotemporal microbial evolution on antibiotic landscapes*, Science, **353**, 1147–1151 (2016)
Media attention including: PBS News Hour, CNN, NPR, The Atlantic, Haaretz, The Scientist, Smithsonian, Vox, Vice Motherboard, Wired, Gizmodo, Slate
 24. A. Palmer^{*}, E. Toprak^{*}, **M. Baym**, S. Kim, A. Veres, S. Bershtein, R. Kishony, *Delayed commitment to evolutionary fate in antibiotic resistance fitness landscapes*, Nature Communications, **6**, 7385 (2015)
 25. **M. Baym**^{*}, S. Kryazhimskiy^{*}, T.D. Lieberman^{*}, H. Chung^{*}, M.M. Desai, R. Kishony, *Inexpensive Multiplexed Library Preparation for Megabase-Sized Genomes*, PLoS ONE, **10**, e0128036 (2015)
 26. D.J. Klein, **M. Baym**, and P. Eckhoff, *The Separatrix Algorithm for Synthesis and Analysis of Stochastic Simulations with Applications in Disease Modeling*, PLoS ONE **9**, e103467 (2014)
 27. N.M. Daniels, A. Gallant, J. Peng, L.J. Cowen, **M. Baym**, and B. Berger, *Compressive genomics for*

- protein databases*, *Bioinformatics* **29:13** i283–i290 (2013)
28. **M. Baym** and D.B. West, *Bounds on the k-dimension of Products of Special Posets*, *Order* **30** 779–796 (2013)
 29. P.-R. Loh*, **M. Baym***†, and B. Berger†, *Compressive Genomics*, *Nature Biotechnology* **30** 627–630 (2012)
Selected for Highlights Track at RECOMB 2013 and ISMB 2013
 30. D. Park, R. Singh, **M. Baym**, C. Liao, and B. Berger, *IsoBase: A Database of Functionally Related Proteins across PPI Networks*, *Nucleic Acids Research*, **39** D295–300 (2011)
 31. D.S. Lun, G. Rockwell, N.J. Guido, **M. Baym**, J.A. Kelner, B. Berger, J.E. Galagan, and G.M. Church, *Large-scale identification of genetic design strategies using local search*, *Molecular Systems Biology* **5:296** (2009)
 32. C.-S. Liao, K. Lu, **M. Baym**, R. Singh, and B. Berger, *IsoRankN: Spectral methods for global alignment of multiple protein networks*, *Bioinformatics*, **25(12)**: i253–258 (2009)
 33. **M. Baym***, C. Bakal*, N. Perrimon and B. Berger, *High-Resolution Modeling of Cellular Signaling Networks.*, Proceedings of the 12th Annual International Conference on Research in Computational Molecular Biology (RECOMB) LNBI **4955**: 257–271 (2008)
 34. **M. Baym** and A.W. Hübler, *Conserved quantities and adaptation to the edge of chaos*, *Phys. Rev. E*. **73**, 056210 (2006)

Preprints

35. S.G. Sutcliffe, S.A. Kraemer, I. Ellmen, J.J. Knapp, A.K. Overton, D. Nash, J.I. Nissimov, T.C. Charles, D. Dreifuss, I. Topolsky, P.I. Baykal, L. Fuhrmann, K.P. Jablonski, N. Beerenwinkel, J.I. Levy, A.S. Olabode, D.G. Becker, G. Guban, E. Britnell, A.F.Y. Poon, R. Valieris, R.D. Drummond, A. Defelicibus, E. Dias-Neto, R.A. Rosales, I.T. Silva, A. Orfanou, F. Psomopoulos, N. Pechlivanis, L. Pipes, Z. Chen, J.A. Baaijens, M. Baym, B.J. Shapiro, *Tracking SARS-CoV-2 variants of concern in wastewater: an assessment of nine computational tools using simulated genomic data*, (2023)
 Preprint: <https://www.biorxiv.org/content/10.1101/2023.12.20.572426v1>
36. K. Břinda, L. Lima, S. Pignotti, N. Quinones-Olvera, K. Salikhov, R. Chikhi, G. Kucherov, Z. Iqbal, M. Baym, *Efficient and Robust Search of Microbial Genomes via Phylogenetic Compression*, (2023)
 Preprint: <https://www.biorxiv.org/content/10.1101/2023.04.15.536996>
37. Y. J. Jiao*, **M. Baym***, A. Veres, R. Kishony, *Population diversity can jeopardize the efficacy of antibiotic cycling*
 Preprint: <http://www.biorxiv.org/content/early/2016/10/20/082107>, (2017)

*Authors contributed equally. †Co-senior author.

Review Articles

38. C. Souque, I. González Ojeda, **M. Baym**, *From Petri dishes to patients to populations: scales and evolutionary mechanisms driving antibiotic resistance*, *Annual Reviews Microbiology*, to appear (2024)
39. **M. Baym***, L.K. Stone*, R. Kishony, *Multidrug evolutionary strategies to reverse antibiotic resistance*, *Science*, **351**, 6268 (2016)

Consensus Report

40. Contributing author to "*Combating Antimicrobial Resistance and Protecting the Miracle of Modern Medicine*", National Academy Press, Washington, DC, (2021)

Perspective

41. **M. Baym**, *Sustainable Stewardship Needs Evolution*, Cell Host and Microbe, **26(1)**: 8 (2019)

Issued Patents

1. *Method for isolating DNA molecules by generating a progenitor collection catalog*, US Patent #11,053,493
2. *Devices, systems, and methods for automated data collection*, US Patent #10,783,989
3. *Compressing, storing and searching sequence data*, US Patent #10,777,304
4. *Devices and methods for profiling microbiota of skin*, US Patent #10,575,834
5. *Portable electronic device directed audio emitter arrangement system and method*, US Patent #10,575,093
6. *Modifying a cosmetic product based on a microbe profile*, US Patent #10,546,651
7. *Portable electronic device directed audio system and method*, US Patent #10,531,190
8. *Systems, methods, and devices for assessing microbiota of skin*, US Patent #10,448,929
9. *Apparatus, system, and method for controlling movement of an orthopedic joint prosthesis in a mammalian subject*, US Patent #10,420,666
10. *Mobile device for requesting the capture of an image*, US Patent #10,348,948
11. *Portable electronic device directed audio system and method*, US Patent #10,291,983
12. *Systems and methods for competency training and use authorization for dispensing an agent*, US Patent #10,229,607
13. *Robotic debridement apparatuses, and related systems and methods*, US Patent #10,226,307
14. *Systems, methods, and devices for assessing microbiota of skin*, US Patent #10,219,789
15. *Electronically determining compliance of a medical treatment of a subject with a medical treatment plan for the subject*, US Patent #10,217,177
16. *Robotic debridement apparatuses, and related systems and methods*, US Patent #10,213,225
17. *Portable electronic device directed audio targeted multiple user system and method*, US Patent #10,181,314
18. *Modifying a cosmetic product based on a microbe profile*, US Patent #10,140,424
19. *Apparatus, system, and method for controlling movement of an orthopedic joint prosthesis in a mammalian subject*, US Patent #10,137,024
20. *Mobile device for requesting the capture of an image*, US Patent #9,936,114
21. *Portable electronic device directed audio targeted user system and method*, US Patent #9,886,941
22. *Systems, devices, and method for determining treatment compliance including tracking, registering, etc. of medical staff, patients, instrumentation, events, etc. according to a treatment staging plan*, US Patent #9,864,839
23. *Modifying a cosmetic product based on a microbe profile*, US Patent #9,811,641
24. *Modifying a cosmetic product based on a microbe profile*, US Patent #9,805,171
25. *Systems, devices, admixtures, and methods including transponders for indication of food attributes*, US Patent #9,792,539

26. *Systems, devices, and method for determining treatment compliance including tracking, registering, etc. of medical staff, patients, instrumentation, events, etc. according to a treatment staging plan, US Patent #9,734,543*
27. *Compressing, storing and searching sequence data, US Patent #9,715,574*
28. *Systems and devices for profiling microbiota of skin, US Patent #9,610,037*
29. *Liquefied breathing gas systems for underground mines, US Patent #9,605,806*
30. *Devices, systems, and methods for automated data collection, US Patent #9,589,106*
31. *Mining drill with gradient sensing and method of using same, US Patent #9,587,482*
32. *Kinetic penetrator with a retrieval tether, US Patent #9,562,396*
33. *Systems, methods, and devices for assessing microbiota of skin, US Patent #9,557,331*
34. *Devices and methods for sampling and profiling microbiota of skin, US Patent #9,549,703*
35. *Devices and methods for profiling microbiota of skin, US Patent #9,526,480*
36. *Devices and methods for profiling microbiota of skin, US Patent #9,526,450*
37. *Radiofrequency particle separator, US Patent #9,480,991*
38. *Acoustic source fragmentation system for breaking ground material, US Patent #9,468,932*
39. *Oral implant system for releasing encapsulated food additives by exposure to energy, US Patent #9,462,822*
40. *Devices, systems, and methods for automated data collection, US Patent #9,460,264*
41. *Systems, methods, and devices for assessing microbiota of skin, US Patent #9,456,777*
42. *Apparatus, system, and method for controlling movement of an orthopedic joint prosthesis in a mammalian subject, US Patent #9,439,797*
43. *Devices and methods for competency training and use authorization for dispensing an agent, US Patent #9,390,457*
44. *Systems, methods, and devices for assessing microbiota of skin, US Patent #9,390,312*
45. *Actively released food additives, US Patent #9,357,865*
46. *Devices, systems, and methods for automated data collection, US Patent #9,317,662*
47. *Focusing electromagnetic radiation within a turbid medium using ultrasonic modulation, US Patent #9,232,896*
48. *Systems and devices for sampling and profiling microbiota of skin, US Patent #9,186,278*
49. *Systems, devices, and method for determining treatment compliance including tracking, registering, etc. of medical staff, patients, instrumentation, events, etc. according to a treatment staging plan, US Patent #9,008,385*
50. *Determining a next value of a system-simulation parameter in response to a representation of a plots having the parameter as a dimension, US Patent #8,949,084*
51. *Determining a next value of a system-simulation parameter in response to representations of plots having the parameter as a dimension, US Patent #8,938,374*
52. *Focusing electromagnetic radiation within a turbid medium using ultrasonic modulation, US Patent #8,917,442*
53. *Mining drill with gradient sensing, US Patent #8,857,539*
54. *Determining a next value of a parameter for system simulation, US Patent #8,855,973*
55. *Material, system, and method that provide indication of a breach, US Patent #8,845,969*
56. *Systems, devices, admixtures, and methods including transponders for indication of food attributes, US Patent #8,746,576*
57. *Material, system, and method that provide indication of a breach, US Patent #8,715,576*

58. *Systems and methods for dynamic drug therapy response to blood pressure incidents*, US Patent #8,702,683
59. *Inflatable cuff with built-in drug delivery device for dynamic drug therapy response to blood pressure incidents*, US Patent #8,702,614
60. *Systems, devices, admixtures, and methods including transponders for indication of food attributes*, US Patent #8,695,884

Published Patent Applications

Full list of 103 searchable at: <https://ppubs.uspto.gov/pubwebapp/>

Teaching and Mentoring

Courses

Harvard University

HMS PHAGES Summer Phage Discovery Internship (Roxbury Community College)	2022-present
Concepts in Genome Analysis (Graduate)	2018-present

MIT Teaching Assistant in Mathematics

Group Theory with Applications to Physics (Graduate)	2004
Principles of Applied Mathematics (Undergraduate)	2003

Postdoctoral Fellows

Tatiana Ruiz-Bedoya, PhD	2024-present
Célia Souque, PhD	2022-present
Fernando Rossine, PhD	2021-present
Siân Owen, PhD	2018-present
Lucy McCully Espinosa, PhD	2019-2023
Now: Viral Sequencing Microbiologist, Massachusetts Department of Public Health	
Karel Břinda, PhD	2017-2022
Now: INRIA Starting Faculty, INRIA, Rennes, France	
Jasmijn Baaijens, PhD	2019-2021
Now: Assistant Professor of Computer Science, TU Delft, The Netherlands	
Cristina Herren, PhD	2017-2021
Now: Assistant Teaching Professor of Marine and Environmental Sciences, North-eastern University	

PhD Students

Kepler Mears Biological and Biomedical Sciences	2024-present
Shreyas Pai Systems, Synthetic, and Quantitative Biology	2023-present
Sophia Wiesenfeld Systems, Synthetic, and Quantitative Biology	2023-present
Amy Zamora Systems, Synthetic, and Quantitative Biology	2021-present
Arya Kaul Bioinformatics and Integrative Genomics	2020-present

Eleanor Rand Systems, Synthetic, and Quantitative Biology	2020-present
Natalia Quiñones-Olvera Systems, Synthetic, and Quantitative Biology	2018-2024
Anurag Limdi Molecules, Cells, and Organisms	2018-2023

Masters Students

Adele Collin Masters in Biomedical Informatics (HMS)	2023-present
Eve Rahbé École Polytechnique Fédérale de Lausanne (EPFL) <i>Best Masters Thesis in Life Sciences and Technology (EPFL)</i>	2018-2019
Simone Pignotti Université Paris-Est	2018

Undergraduates

Alice Fan Sysbio Summer Internship / BU	Summer 2022
Carmen Hernandez Perez SHURP / Cal State Northridge	Summer 2022
Katelyn Lee Sysbio Summer Internship / Caltech	Summer 2021
Mische Holland SIMBI / University of California San Diego	Summer 2019 & 2020
Gabriella "Elle" Deich MIT MSRP / Duke University	Summer 2019
Isabel Ott University of Georgia	Summer 2018
Winston Michalek Harvard College	Spring 2018

Media Coverage (selected)

60 Minutes (CBS) Could antibiotic-resistant "superbugs" become a bigger killer than cancer?	2019
NPR Here and Now (audio interview) Viral Video Shows How Frighteningly Fast Bacteria Can Evolve	2016
PBS News Hour Watch antibiotic-resistant bacteria evolve right before your eyes	2016
CNN See for yourself A giant petri dish models antibiotic resistance	2016
NPR WATCH : Bacteria Invade Antibiotics And Transform Into Superbugs	2016
The Atlantic Stunning Videos of Evolution in Action	2016
Wired A Gorgeous and Unsettling Video of Evolution in Action	2016
Slate Watch Evolution Occur Before Your Eyes	2016
Sydney Morning Herald Scientists reveal the frightening speed at which bacteria can develop antibiotic resistance	2016

Other Positions Held

Institute for Disease Modeling at Intellectual Ventures Research Consultant in Epidemiological Modeling and Biomedical Technologies	2009 – 2014
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Santa Fe Institute (SFI) <i>Visiting Researcher</i> in Chaos Theory and Theoretical Biology Advisors: Alfred Hübler and Stuart Kauffman	2003
UIUC Department of Chemistry <i>Research Assistant</i> in Computational Chemical Biology Advisor: Zaida Luthey-Schulten	2001, 2002
UIUC Department of Mathematics <i>UNIX Consultant</i>	2001
Sigma Digital Designs <i>Co-founder and web content designer</i>	1996 – 1998

Service

National Academies of Sciences, Engineering, and Medicine (NASEM) Committee on the Long-term Health and Economic Effects of Antimicrobial Resistance Committee Member	2020 – 2021
New PI Slack Advisory Board Member	2019 – 2022
American Society of Microbiology ASM Microbe Meeting Session Organizer: “Molecular Insights from Experimental Evolution”	2019
Natural Sciences and Engineering Research Council (NSERC), Canada External Reviewer	2018
Peer Reviewed Medical Research Program (PRMRP) for the Department of Defense Congressionally Directed Medical Research Programs (CDMRP) Panel Reviewer	2018
Harvard Data-Powered Strategies to Counteract Antibiotic Resistance Symposium Organizer	2018
Harvard Biostatistics – Biomedical Informatics – Big Data (B3D) Seminar Organizer	2017 – 2018
L’Agence Nationale de la Recherche (National Research Agency), France External reviewer	2017
The Wellcome Trust, UK Peer reviewer	2017
NSF Division of Environmental Biology <i>Ad hoc</i> reviewer	2017
PLOS Genetics Guest Editor	2017
Cell Systems; G3: Genes, Genomes, Genetics; mSystems; Nature Biotechnology; Nature Communications; PNAS; PLOS Biology; Science; Science Advances Reviewer	2014 – present

NSF Division of Environmental Biology

2009

Panel reviewer

MIT Applied Mathematics Graduate Student Seminar (SPAMS)

2007 – 2008

Organizer