

Bryn Marie Reimer

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Education

University of Massachusetts — Amherst

PhD student, Computer Science; Spaulding-Smith Fellow

Focus: Computational biology, genomics, AI/ML

Research Supervisor: Prof Anna Green, UMass Amherst

Amherst, MA

2024 – present

Massachusetts Institute of Technology

Graduate student, Electrical Engineering and Computer Science

Focus: AI planning, discrete-space ML

Research Supervisor: Dr Una-May O'Reilly, MIT

Cambridge, MA

2019 – 2021

University of Cambridge

Dr Herchel Smith Fellow

Master of Philosophy in Computational Biology (Half-taught, half-research)

Dissertation title: Differential methylation in female multiple sclerosis cases

Research Supervisor: Prof Lisa Barcellos, UC-Berkeley

2017

Master of Philosophy in Chemistry (Degree by Research)

Dissertation title: Computational studies on the mechanism of homogeneous gold catalysis

Research Supervisor: Prof Jonathan M Goodman, University of Cambridge

2016

Williams College

B.A. in Chemistry, Magna Cum Laude, Phi Beta Kappa

Williamstown, MA

2011 – 2015

Research and Work Experience

Senior Expert I, Data Science

Novartis Institutes of BioMedical Research

- Developed in-house tool for predicting covalently-modifiable cysteine residues using structural information alone (publication in revision)
- Created an in-house pipeline for predictive modeling of ternary complexes with bifunctional linkers
- Assessed workflows for protein-protein interaction prediction with coevolution, physics-based methods

Cambridge, MA

2021 – 2024

Data Scientist

Massachusetts General Hospital

Prof Vamsi Mootha (Harvard Medical School)

- Elucidated mitochondrial metabolism through computational genomics, metabolomics, and proteomics, working with small teams on multi-disciplinary projects
- Contributed several algorithms and pipelines that remain in use in the lab (open-source natural isotope correction; bioinformatic analysis of RNA sequencing data)
- Organized and led small symposia on statistics and hypothesis testing specifically for working biologists

Boston, MA

2017 – 2019

Tutoring and Teaching Assistanceships

Williamstown, MA

Williams College

- TA, Philosophy 203: Logic and Language (Prof Keith McPartland, Spring 2015)
- Physics tutor for Office of Student Life (Jan 2014 – Jun 2015)
- Private mathematics tutor (Mar 2014 – Jun 2015)

Teaching Assistanceship

Cambridge, UK

University of Cambridge, Chemistry Department

- Lab Demonstrator for Part 1A chemistry, natural sciences tripos (2015 – 2016)

Papers, Posters, and Presentations

Reimer, B., ..., Hornak, V., CovCysPredictor: Predicting Selective Covalently Modifiable Cysteines Using Protein Structure and Interpretable Machine Learning. *Journal of Chemical Information and Modeling* **2025**

Gopal, R., ... Reimer, B., ..., Mootha, V.K., Effectors enabling adaptation to mitochondrial complex I loss in H urthle cell carcinoma. *Cancer Discovery* **2023**

Shi, X.*, Reinstadler, B.*, ... Shen, H., Combinatorial GxGxE CRISPR screening and functional analysis highlights SLC25A39 in mitochondrial GSH transport. *Nature Communications*, **2022**

Springer, J.*, Reinstadler, B.*, O'Reilly, U., STRATA: Simple, Gradient-Free Attacks for Models of Code. *KDD'21 AdvML Workshop*

Sharma, R., Reinstadler, B., ..., Mootha, V.K., Discovery of circulating biomarkers of mitochondrial disease severity and mechanism. *The Journal of Clinical Investigation* **2021**

“STRATA: Building Robustness with a Simple Method for Generating Black-box Adversarial Attacks for Models of Code”

Poster presented at Women in Machine Learning Workshop at NeurIPS, **2020**

Wang, L.W.*,... Reinstadler, B., ..., Gewurz, B.E. Epstein-Barr Virus Induced One-Carbon Metabolism Drives B-Cell Transformation. *Cell Metabolism* **2019**

“Using clustering, meQTLs and DMR analysis to prove differences in MS cases”

Poster presented at American Society of Human Genetics (ASHG) Orlando, **2017**

“P-OSRA: Polymer Optical Structure Recognition Application”

Poster presented at ACS Boston in Sci-Mix Poster Presentation, **2015**

Oral presentation given at ACS Boston in CINF division, **2015**

“Supersecondary Structure Motifs and De Novo Protein Structure Predictions”

Poster presented at the Grace Hopper Celebration of Women in Computing, **2012**

Mentorship and Volunteering

Academic & Industrial

Young Scientist Outreach Program (Novartis) 2022 – 2024

- Collaborated with a team of volunteer organizers within Novartis to run a mentorship program for young scientists in the United States, where each young scientist was matched with a Novartis scientist mentor for the period of a year
- Coordinated and led workshops, panels, and events for the Young Scientist Outreach Program, including a 100+ person virtual event on Preparing for Graduate School
- Personally mentored several students, including monthly meetings, CV review, and mock interviewing

Bias in Coding (Novartis) 2021 – 2023

- Together with a small team of volunteers, organized and ran workshops and events addressing the theme “Bias in Coding,” writ large — how our ML models encode bias, and how our workplaces deal with interpersonal bias

Women in Machine Learning (NeurIPS workshop) Fall 2020

- Mentored an undergraduate student, giving technical feedback and advice through the poster process and about graduate school applications
- Volunteered to help organize conference, including coordination responsibilities overseeing a large group of volunteers

India Science Month Online (ISMO) Winter 2020–2021

- Mentored a PhD scholar at IISER Mohali, advising on presentation style, content, and clarity for a virtual “Talk Your Thesis” event; she went on to win second place.

Undergraduate supervision 2020–2021

- Mentored an incoming PhD student, Jake Springer, through a machine learning project that resulted in a publication in the KDD’21 AdvML Workshop.

Advocacy

Women in Ringing (Central Council of Church Bell Ringers) 2020–2021

- Designed and executed data analysis and visualizations emphasizing the historical and present role of women in a traditionally male-dominated space
- Collaborated to raise awareness and introduce new initiatives supporting women in ringing, resulting in several articles, workshops, and a website full of stories: <https://www.womeninringing.info/>

Technical Skills

Programming Languages + Related: R and RShiny, Python (scikitlearn, pytorch), git, LaTeX, Unix/Linux, bash. Some experience: Java, Scala, go, Haskell.

Broader Skills: Traditional statistical modeling (regression & classification), natural language processing, AI/ML, algorithm design and implementation, exploratory data analysis, data visualization

Computational Biology: RNAseq/DNAseq, proteomics, metabolomics, combinatorial screens (CRISPR)

Computational Chemistry: Molecular dynamics, virtual screening

Academic Awards, Fellowships, and Scholarships

Spaulding-Smith Fellow at UMass Amherst	2025 – present
Dr Herchel Smith Fellow at University of Cambridge	2015 – 2017
James F. Skinner Prize in Chemistry	June 2015
Phi Beta Kappa Membership	Spring 2015
American Physics Society / IBM Internship scholarship	Summer 2014
CRA-W (Computing Research Association – Women) DREU scholarship	Summer 2012