

# Bryn Marie Reimer

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## Education

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### 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

**Cambridge, UK**

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

*2017*

*Dissertation title: Differential methylation in female multiple sclerosis cases*

Research Supervisor: Prof Lisa Barcellos, UC-Berkeley

*Master of Philosophy in Chemistry (Degree by Research)*

*2016*

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

Research Supervisor: Prof Jonathan M Goodman, University of Cambridge

### Williams College

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

**Williamstown, MA**

*2011 – 2015*

## Research and Work Experience

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### Senior Expert I, Data Science

*Novartis Institutes of BioMedical Research*

**Cambridge, MA**

*2021 – 2024*

- 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

### Data Scientist

*Massachusetts General Hospital*

**Boston, MA**

*2017 – 2019*

*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

## 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

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**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

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### 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

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**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

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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