

Bryn Reinstadler

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2353 Massachusetts Ave #74
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Education

Massachusetts Institute of Technology **Cambridge, MA**
Graduate student, Electrical Engineering and Computer Science *2019 – Present*
Focus: AI planning, discrete-space adversarial examples for models of code
Research Supervisor: Dr Una-May O'Reilly, MIT

University of Cambridge **Cambridge, UK**
Dr Herchel Smith Fellow

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 **Williamstown, MA**
B.A. in Chemistry, Magna Cum Laude, Phi Beta Kappa *2011 – 2015*

Research and Work Experience

Data Scientist **Boston, MA**
Massachusetts General Hospital *2017 – 2019*
Prof Vamsi Mootha (Harvard Medical School)

- Successfully worked with small teams of scientists on multiple, multi-disciplinary projects which resulted in 1 *Cell Metabolism* publication, with 2 more publications in the revision stage
- Contributed several algorithm implementations and pipelines that remain in use in the lab (natural isotope correction; bioinformatic analysis of RNA sequencing data)
- Organized and led small symposia on statistics and hypothesis testing specifically for working biologists

Summer Intern: Software Development **Boston, MA**
Meta (now Diffeo) *Summer 2015*

- Contributed to development and release of the first beta for an early-stage start-up
- Developed integrations with cloud services such as Google Drive, Endnote, and Dropbox, using a language learned during the course of the internship (golang)
- Worked with small team to develop in-house natural language processing (NLP) pipeline to tag files with content-appropriate, text-extracted concepts (Python)

Summer Research: Computer vision & chem-informatics **San Jose, CA**
IBM - Almaden Research Center *Summer 2014*
Dr Hans Horn

- Successfully collaborated on image recognition software for identifying bond-line polymer structures
- Aided in developing a database and database injection system using Hibernate and Maven
- Developed a functional website to field user inputs and requests to and from the polymer database

Summer Research: Structural biology

George Mason University

Dr Amarda Shehu

Fairfax, VA

Summer 2012

- Developed data analysis pipeline to determine whether the presence of supersecondary structural motifs in a protein could be inferred from the geometry of the secondary structure alone.
- Work resulted in a poster at the Grace Hopper Celebration for Women in Computing

Papers, Posters, and Presentations

Springer, J., **Reinstadler, B.**, O'Reilly, U., STRATA: Building robustness with a simple method for generating black-box adversarial attacks for models of code. *In preparation for Sept 2020 submission*

Shen, H.*, **Reinstadler, B.***, Mootha, V.K., Systematic mapping of G x G x E interactions across mitochondrial transporters. *In revision*

Sharma, R., **Reinstadler, B.**, ..., Mootha, V.K., Discovery of circulating biomarkers of mitochondrial disease severity and mechanism. *In revision*

Wang, L.W.*, Shen, H.*, Nobre, L.*, Ersing, I.*, Paulo, J.A., Trudeau, S., Sommermann, T., Ma, Y., **Reinstadler, B.**, Nomburg, J., Cahir-McFarland, E., Gygi, S.P., Mootha, V.K., Weekes, M.P., 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**

Technical Skills

Programming Languages + Related: Python, R, git, LaTeX, Scala, Java, go, golang, Unix/Linux, bash

Broader Skills: AI (Artificial Intelligence) planning, statistical machine learning, deep learning, natural language processing, adversarial examples, algorithm design and implementation

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

Academic Awards, Fellowships, and Scholarships

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