Isaac Peabody

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EDUCATION

Columbia University - Fu Foundation School of Engineering and Applied Science New York, NY
M.S. in Data Science, GPA 4.21/4.0 Sept 2023 - Dec 2024

University of Virginia – College of Arts and Sciences Charlottesville, VA
B.S. in Mathematics, Biology, GPA 3.87/4.0 Aug 2018 - May 2022

- Graduated with Distinction

PROFESSIONAL EXPERIENCE

Novo Nordisk Lexington, MA
Data Science Intern - AI and ML Sciences May 2024 - Aug 2024

- Lead meetings between members of the Data Science and Medical Affairs teams to establish a framework for analyzing atherosclerotic cardiovascular disease (ASCVD) clinical trial results
- Harnessed Python and SQL to extract medical records from over 200,000 patients within EHR and claims databases
- Constructed predictive risk models to assess effect of patient characteristics on risk for recurrent ASCVD events, outperforming similar clinical risk models for ASCVD (AUC: 0.781 vs. 0.750)

AMPEL BioSolutions, LLC Charlottesville, VA
Research Associate Jun 2022 - Aug 2023
Bioinformatics Intern Feb 2020 - May 2022

- Analyzed genomic data from thousands of lupus patients to identify novel disease pathways for systemic lupus erythematosus (SLE) using specialized R packages (GSEABase, GSVA, Rpart)
- Implemented bioinformatics pipelines to decipher effects of specific mutations on SLE, combining data visualization tools (Cytoscape, Prism), differential expression analyses (DESeq2), and custom bioinformatics packages in R / Python
- Maintained analysis scripts for co-expression analysis, multiple linear regression, and classification tree generation

RESEARCH EXPERIENCE

Columbia University Irving Medical Center New York, NY
Graduate Research Assistant - Patient Safety Division Jan 2024 - May 2024

- Optimized SQL query logic for detecting diagnostic imaging order errors within the Columbia Health System
- Expanded existing SQL queries to distinguish between different types of retract-and-reorder events (RARs), isolating four distinct RAR subtypes

University of Virginia Department of Neuroscience Charlottesville, VA
Undergraduate Research Assistant - Hirsh Laboratory Oct 2018 - May 2020

- Built tools in Python to process single-cell sequencing data, isolating 8 transcription factors unique to dopamine-positive brain cells
- Designed activity monitors in AutoCAD to measure fly locomotion under different drug dosages, enabling simultaneous observation of 4 different experimental conditions

Whitehead Institute for Biomedical Research Cambridge, MA
Research Assistant - Pincus Laboratory May 2017 - Aug 2017

- Implemented RNA sequencing pipelines to process raw genomic reads from yeast strains under oxidative stress via shell scripting
- Assisted lab Ph.D. students with propagating cell cultures, harvesting DNA / RNA, and transforming recombinant E. coli lineages

TEACHING EXPERIENCE

Algorithms for Data Science (CSORW4246) Columbia University
Teaching Assistant Fall 2024

- Masters-level course on fundamental algorithms and data structures for data science
- Held office hours (4 hours per week), graded homework assignments and exams, helped review exam content, and oversaw online discussion board for student questions

Analysis of Algorithms I (CSORW4231) Columbia University
Teaching Assistant Spring 2024

- Masters-level course on fundamental topics in the design and analysis of efficient algorithms
- Held office hours (2 hours per week), graded homework assignments and exams, and helped review exam content

HONORS AND AWARDS

- Data Science Institute Scholar, Columbia University; Jan 2024 - May 2024
- Intermediate Honors, "awarded to the top twenty percent of those who enter the University", University of Virginia, May 2020
- Echols Scholar, selected for "potential for significant intellectual engagement at UVA and beyond", University of Virginia; Aug 2018 - May 2022
- College Science Scholar, University of Virginia; Aug 2018 - May 2022

PUBLICATIONS

1. **Peabody, I.**, Olferiev, M., Owen, K. A., Dawson, T., Bachali, P., Kasson, P., Grammer, A. C., Crow, M. K., and Lipsky, P. E. (2024). "Reduced adenosine-mediated regulatory activity exacerbated by an *NT5E* loss of function variant is linked to tissue inflammation and hypertension in systemic lupus erythematosus" (Under Review).