Rowan Callahan

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PhD in Biomedical Engineering
Oregon Health & Science University, 2020–2025 (expected)

Relevant Coursework:
Statistical Inference, Bayesian Statistics,
Machine Learning, Bioinformatic Algorithms

BS in Bioengineering
Cornell University, 2014–2018

Technical Skills

- **Bioinformatics**: Expert-level Snakemake pipeline development for large-scale genomics workflows. Specialized in RNA-seq analysis, cell-free RNA analysis, and ATAC-seq analysis. Created pipelines that processed hundreds of NGS samples and terabytes of sequencing data.
- **Computational & Statistical Modeling**: Deep knowledge of R for statistical analysis, data cleaning, and machine learning applications. Expertise in Python, PyTorch, Bayesian modeling frameworks, and high-performance computing with Slurm/HPC systems.
- **Data Visualization & Analysis**: Extensive experience with data visualization including ggplot2, seaborn, and matplotlib. Experienced with data manipulation using pandas, tidyverse, and dplyr for complex genomic datasets.
- **Systems & Infrastructure**: Proficient in Linux system administration, bash scripting, software compilation, and environment management. Skilled in managing computational workflows for large-scale data processing.

Research Experience

- **Graduate Researcher**, Oregon Health & Science University, Fall 2020–Present
  - Thesis title: *Alternative Information Sources in cell free RNA*. Developed novel computational methods to determine putative sources of RNA transcripts from k-mer content. Co-author of Nature Communications paper predicting cancer with cfRNA. Processed and analyzed hundreds of cfRNA samples with terabytes of sequencing data using custom bioinformatics pipelines.
- **Research Assistant**, Maxson Lab, Oregon Health & Science University, Winter 2020–Fall 2020
  - Created Snakemake pipeline for ATAC-Seq analysis. Assisted with data visualization efforts and sequencing dataset processing. Created figures for and co-authored multiple papers on cancer progression in leukemia.
- **Laboratory Technician**, Brito Lab, Cornell University, Summer 2018–Summer 2019
  - Managed laboratory operations and experimental workflows. Developed Snakemake pipelines and conducted large-scale genomic analysis of thousands of microbial genomes from GenBank. Assisted with visualization and statistical analysis of microbiome datasets, contributing to publications on microbiome effects in arthritis and disease response.

Leadership & Service

- **External Vice President**, Biomedical Engineering Society, OHSU, 2023–2024
- **Mentor**, Undergraduate Summer Research Program, OHSU, Summer 2024
  - Supervised undergraduate research on cell-free RNA normalization methods
  - Mentee presented findings via poster presentation