Eamon O'Connor

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LinkedIn | Github | Website

SUMMARY OF QUALIFICATIONS

- Experience working in multiple teams of a fast-growing biotech startup. Developed a broad yet strong foundation in both experimental and analytical science
- Focused on NGS analysis in industry with personal and academic experience in metagenomics, cell communication analysis, machine learning, and molecular modeling
- Diverse professional background in civil engineering and veterinary medicine strengthened my ability to effectively communicate across disciplines
- Seeking a role with strong collaboration across multiple disciplines to advance therapeutic innovations

EDUCATION

Northeastern University, Boston, Massachusetts — Expected May 2025
Master of Science in Bioinformatics — GPA: 3.867
Coursework: Unsupervised Machine Learning, Bioinformatics Programming,Molecular Modeling, Computational Methods in Bioinformatics

Northeastern University, Boston, Massachusetts — June 2024
Bachelor of Science in Biology — GPA: 3.889
Minors: Philosophy, Civil Engineering
Coursework: Biostatistics, Inventions in Microbial Biotechnology, Immunology, Genetics, Biochemistry, Calculus 2 & 3

SKILLS

Programming Languages: Python, R, MATLAB, Bash, SQL
Statistics: Regression Analysis, ANOVA, ANCOVA, Nonparametric Statistics, Data Visualization
Tools & Software: AWS, Git, Nextflow, Codeocean, Matplotlib, ggplot2, Seqkit, UCSC Genome Browser, NCBI, Ensembl
Laboratory Techniques: PCR, Gel Electrophoresis, Western blotting, Bacterial transformation, Protein purification
Soft Skills: Problem solving, Collaboration, Communication, Scientific writing, Adaptability, Attention to detail

PROFESSIONAL EXPERIENCE

Computational Biology Co-op | Metaphore Biotechnologies, Cambridge, MA — January 2025 - Present

- Processed and analyzed NGS data from PacBio and Illumina reads, performing quality control, de-concatemerization, and demultiplexing
  - Developed a new workflow which reduced runtime by 60% without compromising precision or accuracy
- Characterized biopanning hits using counts matrices and MA Plots
- Communicated results with dry lab and wet lab scientists to improve cross-disciplinary collaboration

NGS & Protein Sciences Co-op | Metaphore Biotechnologies, Cambridge, MA — July - December 2024

- Assisted in library preparation for Illumina and PacBio sequencers
- Synthesized protein samples in bacterial cell cultures and performed protein purification workflows
- Analyzed protein samples through various quantification and characterization techniques

Veterinary Assistant Co-op | Metrovet Veterinary Clinic, Boston, MA — July - December 2023

- Maintained detailed records for surgeries and medical exams
- Processed in-house lab work for diagnosis

Civil Engineering Co-op | Vanasse Hangen Brustlin, Inc, Washington, D.C. — January - June 2022

- Researched and designed road redesigns and intersection safety improvement plans
- Presented designs for review to internal groups and D.C. Department of Transportation representatives

RESEARCH & PROJECTS

Gut-brain-omics September -December 2024

Developed a Python program to analyze the correlation between gut microbiome composition and disease phenotypes

- Applied statistical tests (Mann-Whitney U, Welch's t-test) to assess bacterial abundance in disease vs. healthy groups
- Implemented data transformations (e.g., Box-Cox) and visualizations (histograms, QQ plots) for dataset analysis
- Integrated APIs (MeSH RDF, Ensembl, GMrepo) for automated data retrieval and analysis
- Designed customizable analysis pipelines for examining multiple bacteria-disease pairs
- Found significant negative correlation between Depression and relative abundance of Bifidobacterium in the gut

SLE-RA Immune Heterogeneity March - May 2024

Reproduced and extended multi-omics analysis of immune system signaling in systemic lupus erythematosus (SLE) and rheumatoid arthritis (RA)

- Analyzed immune cell communication using the R package *Cellchat*
- Examined changes in the Migration Inhibitory Factor and Galectin-9 pathways between healthy and disease groups
- Visualized findings with heatmaps, violin plots, circle plots, and chord plots

VOLUNTEER EXPERIENCE

NUConnex Committee Member | Net Impact, Boston, MA September 2020 - December 2021

- Led outreach to potential partner organizations in the community
- Coordinated club meetings to implement goals and long term projects
- Participated in onsite trash cleanups in Mission Hill and surrounding communities