

Ethan Littlestone, MS

Bioinformatician I | USF Health College of Nursing

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Bioinformatician with graduate training in bioinformatics and microbiology and a background in wet-lab research. Research interests include cancer immunotherapy, infectious disease, single-cell and multi-omics analysis, structural bioinformatics, and applications of machine learning and AI in biological research.

Research experience

Bioinformatician I

University of South Florida, College of Nursing | July 2025 - present

- Analyze public omics datasets to investigate immunotherapy responses in cancer, with a focus on CD8+ T-cell exhaustion and progenitor-exhausted T cells.
- Compare single-cell atlas definitions and their implications for automated annotation, clonal analyses, and clinical associations.
- Develop reproducible computational workflows and research software; use AI-assisted tools for coding and literature research.
- Presented cancer immunotherapy research at USF Health Research Day.

Academic Fellow

National Institutes of Health, Critical Care Medicine Department | January 2025 - April 2025

- Studied fungal histone and kinetochore protein evolution using sequence and structural comparisons.
- Used Foldseek to compare cell-cycle and kinetochore proteins and AlphaFold to predict protein structures.
- Presented computational methods and findings to interdisciplinary colleagues.

Summer Intern

National Institutes of Health, Critical Care Medicine Department | June 2024 - August 2024

- Investigated protein function and evolutionary relationships in *Pneumocystis* fungal pathogens using the NIH high-performance computing cluster.
- Automated computational analyses with Snakemake.
- Received third place for a research poster at NIH Summer Intern Poster Day.

Laboratory experience

Laboratory Technician

Rapid Genomics | June 2022 - August 2023

- Processed agricultural genotyping samples using high-throughput robotics and prepared sequencing libraries with the Flex-Seq Extension Ligation workflow.
- Tracked samples in laboratory information management software and helped troubleshoot laboratory workflows.

Laboratory Technician

University of Florida, Department of Biochemistry | March 2021 - June 2022

- Prepared and maintained mammalian cell culture media for polio vaccine research.
- Assessed cell viability and growth using hemocytometry, and measured nucleic acid and protein production by spectrophotometry.

Education

MS in Bioinformatics

Northeastern University | May 2025

MS in Microbiology and Cell Science

University of Florida | December 2022

BS in Microbiology and Cell Science

University of Florida | August 2021

Technical skills

Programming and analysis: Python, R, Bash, tidyverse, Bioconductor, statistical modeling, data preparation and visualization.

Computing and workflows: HPC, SLURM, Snakemake, Nextflow, Conda, Mamba, Pixi.

Bioinformatics: RNA-seq analysis, BLAST, Clustal Omega, Bowtie2, IGV, Jalview, Foldseek, AlphaFold.

Laboratory methods: Sequencing-library preparation, PCR, DNA extraction, ELISA, gel electrophoresis, size-exclusion chromatography, spectrophotometry, mammalian cell culture, sterile technique.