

Max Henry Hills, Jr.

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Bioinformatics / Genomics / Neuroscience

Objective

Contribute to the development and application of bioinformatic and statistical techniques as part of a committed team conducting and communicating fundamental research in neurobiology.

Education

University of Oregon, Eugene, OR August 2018 - Present
Master of Science, Biology – Bioinformatics & Genomics

University of Oregon, Eugene, OR September 2015 – June 2018
Bachelor of Science, Biology – Neuroscience & Behavior, cum laude, Phi Beta Kappa

Research Experience

Yu Lab, Stowers Institute for Medical Research, Kansas City, MO September 2018 - Present
Bioinformatics Analyst

- Processed raw FASTQ files acquired from messenger RNAs in mouse olfactory epithelial cells
- Aligned cDNA sequences to a reference genome with STAR aligner
- Utilized drop-seq tools to create a gene expression matrix from transcript read-counts
- Implemented Seurat single cell RNA-Seq analysis to cluster cells by variably expressed gene profiles
- Produced gene-expression and cell-expression-profile visualizations with R

Brain & Memory Lab, University of Oregon, Eugene, OR August 2017 – June 2018

- Observed and guided human subjects as they completed tests of memory and cognition
- Wrote Matlab code to automatically administer an abridged version of the Raven's Progressive Matrices test to subjects who participated in research

Schofield Biophysics Lab, University of Oregon, Eugene, OR August 2015 – January 2016

- Gathered head-size, mandible-length, and mandible-sharpness data from the leaf-cutter ant species *Atta cephalotes*, for a behavioral study on colony response to predator attack
- Performed exploratory data analysis by creating bivariate plots of all response variable combinations, as well as whole-study and variable-wise boxplots and histograms to visualize sample distributions
- Presented and explained project updates during weekly lab meetings

Relevant Skills and Coursework

- Fluent in: Python, R, Unix, Matlab, Excel
- Experience with: STAR, GSNAP, BLAST, SAMtools, Picard tools, Drop-seq tools, Seurat, RStan
- Relevant Coursework: Advanced Biological Statistics, Computational Methods in Genomic Analysis, Molecular Genetics, Neurobiology, Technical Writing

Work History

East Wind Community, Tecumseh, MO January 2009 – April 2013
Kitchen Manager

- Coordinated and supervised up to twenty kitchen staff members
- Practiced active listening and communication skills while expanding and tailoring dietary options in response to community input