Anthony Aylward

Bioinfomatician & Data Scientist

CONTACT

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SKILLS

Python — 7+ yrs

R — 7+ yrs

NGS data — 5+ yrs

Machine learning — 5+ yrs

Linux — 5+ yrs

EDUCATION

Sep 2013 - Jul 2021

PhD Bioinformatics & Systems Biology
UC San Diego

Dissertation on statistical genetics methods for diabetes research

Sep 2008 - Jun 2012

BS Mathematics
UC Santa Barbara

Thesis on mathematical ecology

ONLINE CV

Scan the QR code or click here to view an extended online CV.

EXPERIENCE

PhD Student   UC San Diego   `Sep 2013 - Jul 2021`
Bioinformatics & Systems Biology

Directly managed two long-term collaborative research projects that led to scientific publications in peer-reviewed journals

Bioinformatics / statistics:

- Processed hundreds of NGS DNA sequencing datasets using standard tools such as `bowtie2`, `bwa`, `samtools`, `bedtools`, etc
- Developed over a dozen Python packages to facilitate and automate data analysis pipelines
- Used R and Bioconductor to perform bioinformatics & statistical analyses, including developing custom packages
- Routinely advised other graduate students and postdocs on statistical analysis questions

Machine learning / data science

- Extensively studied and applied machine learning methods as part of graduate course cirriculum and independently. Markov models, random forests, support vector machines, neural networks, etc.
- Documented and presented data analysis methods using Jupyter Notebooks

Software / computing:

- Acted as a primary system administrator for lab computing resources for several years, becoming deeply familiar with Linux and MacOS command line environments. Also capable of working with Windows.
- Made occasional contributions to the design and implementation of the Diabetes Epigenome Atlas, using Python and SQL

Research Assistant   CSU Chico   `Sep 2012 - Sep 2013`
Mathematical Biology

Developed a mathematical model for angiogenesis (growth of blood vessels) in mouse retina

PROFILE

Anthony is a PhD bioinformatics scientist, fascinated by the ever-growing wealth of knowledge contained in large-scale biological datasets. His graduate school research focused on statistical genetics and diabetes.

When not analyzing data, Anthony enjoys an exciting game of Rocket League or a relaxing run through the park with his golden retriever, Cali.

PUBLICATIONS

First author:

Aylward et al. Glucocorticoid signaling in pancreatic islets modulates gene regulatory programs and genetic risk of type 2 diabetes
PLOS Genetics

May 2021

Aylward et al. Shared genetic risk contributes to type 1 and type 2 diabetes etiology
Human Molecular Genetics

Nov 2018

Other:

Geusz et al. Pancreatic progenitor epigenome maps prioritize type 2 diabetes risk genes with roles in development
eLife

Feb 2021

Greenwald et al. Pancreatic islet chromatin accessibility and conformation reveals distal enhancer networks of type 2 diabetes risk
Nature Communications

May 2019

Murrel et al. Gene-Wide Identification of Episodic Selection
Molecular Biology and Evolution

Feb 2015