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 <u>click here</u> 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 Bioconductor and other R packages, including my own, to perform bioinformatics & statistical analyses
- 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