

TIMOTHY CROMBIE

Postdoctoral Researcher Northwestern University

Contact

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Programming

R

Python

bash

Nextflow

Tools

RStudio

Jupyter

git/GitHub

HPC (SLURM)

Data Science

Advanced statistical analysis

Computational pipelines

Machine learning

Data visualization

Markdown reports

Research

Experimental design

High-throughput optimization

Genetics and genomics

R/Python package development

Interdisciplinary collaboration

EDUCATION

Ph.D., Biology

University of Florida

2009 - 2015

B.S., Biology

Arizona State University

1999 - 2004

EXPERIENCE

Postdoctoral Researcher

Northwestern University

2017 - Present

- Generate whole-genome sequence data and apply population genomics tools to explore patterns of *C. elegans* sequence variation
- Optimize high-throughput assays using imaging platforms and liquid handling robots to measure various phenotypes of *C. elegans*
- Devise Nextflow pipelines to process experimental datasets using machine learning tools on a high-performance computing cluster
- Develop R and Python packages to facilitate reproducible data processing and distribute packages using version control on GitHub
- Mentor and manage undergraduate and graduate researchers in experimental design, data collection, statistical analysis, and reporting

Postdoctoral Researcher

University of Florida

2016 - 2017

- Built a 600-line panel of recombinant inbred lines (RILs) with *C. elegans*
- Prepared whole-genome sequencing libraries for the RIL panel and processed sequence data to summarize genetic variation in the lines
- Optimized a high-throughput competitive fitness assay to measure the competitive fitness of RILs using a large particle sorting instrument

Graduate Researcher

University of Florida

2009 - 2015

- Used liquid handling robots, automated imaging systems, gene expression assays, and enzyme activity assays to explore interactions of molecular stress responses during combined stress exposures

Laboratory Technician

University of California, Santa Barbara

2005 - 2009

- Ran Sanger sequencing reactions and analyzed sequence data
- Managed laboratory inventory, ordering, and undergraduate training

SELECTED PUBLICATIONS

Crombie TA et al. 2022. Local adaptation and spatiotemporal patterns of genetic diversity revealed by repeated sampling of *Caenorhabditis elegans* across the Hawaiian Islands. *Molecular ecology*

Nyaanga J, **Crombie TA**, Widmayer SJ, and Andersen, EC. 2021. easyXpress: An R package to analyze and visualize high-throughput *C. elegans* microscopy data generated using CellProfiler. *PLoS ONE*

Crombie TA, Tang L, Choe KP, and Julian D. 2016. Inhibition of the oxidative stress response by heat stress in *Caenorhabditis elegans*. *The Journal of Experimental Biology*