

TIMOTHY CROMBIE

Post-doctoral 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

Post-doctoral Researcher

2017 - Present

Northwestern University

- 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 *C. elegans* traits
- 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

Post-doctoral Researcher

2016 - 2017

University of Florida

- Built a 600-line panel of *C. elegans* recombinant inbred lines (RILs)
- Prepared whole-genome sequencing libraires 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

2009 - 2015

University of Florida

- 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

2005 - 2009

University of California, Santa Barbara

- 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*