

SOPHIE BREITBART, PHD

Research Software Engineer

EDUCATION

2018
|
2024

- **University of Toronto**
PhD in Ecology & Evolutionary Biology 📍 Toronto, Canada

- Thesis: Effects of Urbanization on the Evolutionary Ecology and Population Genetics of Common Milkweed (*Asclepias syriaca*)
- Advisors: Drs. Marc Johnson & Helene Wagner

2012
|
2016

- **Wesleyan University**
BA in Biology 📍 Middletown, Connecticut

- Completed Integrative Genomics Sciences Certificate
- Undergraduate researcher (2013-2016): Minnow biogeography and bacterial phylogeography

EXPERIENCE

2024
|
present

- **Stock Assessment Data and Software Workflow Modeler**
ECS, in support of NOAA Fisheries 📍 Remote

- Design, develop, and maintain software (R packages [asar](#) and [stockplotr](#)) to streamline workflows, improve reproducibility, and enhance transparency of fisheries stock assessments ([NOAA GitHub profile](#))
- Collaborate with national and regional scientists to assess community needs and prioritize workflow improvements

2024

- **Business Consultant**
Tech Medic 📍 Providence, Rhode Island

- Created and updated internal documents to increase efficiency of computer consulting business
- Identified opportunities to improve workflows and operational procedures

2023
|
2024

- **Data Scientist & Instructor**
University of Toronto & Blood Tribe 📍 Alberta, Canada

- Collaborated with the Blood Tribe of the Kainai First Nation to co-create project assessing reservation's rangeland health
- Co-led creation of interactive app to guide various stakeholders through the data analysis while teaching key data science concepts

2023
|
2024

- **Data Scientist**
University of Toronto & University Health Network 📍 Toronto, Canada

- Cleaned, wrangled, and visualized Twitter data for “#TeamVaccine: Exploring the History of Toronto's COVID-19 Vaccination Initiative through Social Media” project
- Communicated with team, revising deliverables accordingly

2018
|
2024

- **Research Assistant**
University of Toronto 📍 Toronto, Canada

- Studied how urbanization impacts reproductive success, genetic divergence, genetic diversity, and population structure of *A. syriaca*
- Taught tutorials in data science, statistics, evolution, and ecology

2016
|
2018

- **Staff Scientist I**
Princeton Hydro 📍 South Glastonbury, Connecticut

- Designed detailed dam removal engineering plan sets with AutoCAD
- Analyzed geospatial data and generated maps using ArcGIS
- Assisted developing strategies for protecting water resources and co-authored watershed management plans

CONTACT

✉ sophie.breitbart@gmail.com
🏠 sbreitbart.github.io
🐙 github.com/sbreitbart
in linkedin.com/in/sophiebreitbart

SKILLS

Languages: R, including base & tidyverse (advanced); Bash (intermediate); Python, CSS, HTML, SQL (familiar)

Project management & reproducibility: Git/Github, Quarto, R Markdown, version control, reproducible examples

Software development: Software design, unit testing, documentation, code review

Data analysis: Data cleaning & wrangling, high-performance computing, SLURM, parallelization, geospatial analysis

Statistics: Linear and mixed models, predictive modelling, multivariate statistics

Data visualization: ggplot2, maps, Shiny apps, dashboards

Communication: Excellent oral and written communication skills including 8 invited and 15 conference presentations, 5 peer-reviewed scientific publications

Full list of publications [here](#).

SOFTWARE

R packages

[asar](#) (Author, contributor since 2024)

[stockplotr](#) (Author, contributor since 2024)

[nmfspalette](#) (Maintainer, contributor since 2025)

FUNDING & AWARDS

Total funding: \$63,329

6 research grants; 2 awards; 2 scholarships; 2 travel grants; 1 workshop grant