

# Julia A. Packer

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<https://juliapacker.github.io>

## Education

- 2026 expected **Dalhousie University** – Halifax, N.S., Canada  
M. Sc. Biology  
Specialization in bioinformatics, phylogenetics, and evolution  
Research supervisor: Dr. Alastair Simpson
- 2024 **Dalhousie University** – Halifax, N.S., Canada  
B. Sc. Honours First Class, Major in Biology  
Dean's List (4.0/4.3 cGPA) 2020-2024

## Honours & Scholarships

- 2024 **Holtz - Conner Award**  
Assists with travel and accommodation expenses for those presenting their work at the International Society of Protistologists conference. 1400 USD
- 2024 **Faye Sobey Undergraduate Research Award** — Halifax, Canada  
The top research award an undergraduate can receive at Dalhousie University and is selected based upon GPA. Up to 15 are given out to the entire Faculty of Science. 9500 CAD
- 2022 **RISE - Mitacs Globalink** —Rostock, Germany  
Undergraduate research award to study science at a Germany university for three months. Selected based on GPA. 6000 CAD
- 2021 **Dalhousie in course scholarship** —Halifax, Canada  
Selected based on GPA. 500 CAD

## Relevant Projects

- 2023/24 **Honours Student at Dalhousie University, Simpson Lab**– Halifax, Canada  
Worked under the supervisor of Dr. Alastair Simpson to classify a newly discovered unclassified unicellular eukaryote. Work included weekly maintenance of culture line, microscopy imaging (Brightfield, DIC, SEM, TEM), DNA harvesting and extraction, RNA harvesting and extraction, RNA data processing, gel electrophoresis, PCR and primer design. Project culminated in a thesis and a 15 minute presentation on the topic.

- 2024 **Independent Research Student at Dalhousie University, Leonard Lab**– Halifax, Canada  
Worked under the supervision of Dr. Andrew Horn (Dalhousie University) and Dr. Robert Ronconi (Environment and Climate Change Canada) to classify and categorize the diving behaviour of Atlantic eider birds. The project helped advance knowledge of bird behaviour in Atlantic Canada, a region unique in the world for having extreme tides. Our study can help develop Canadian shipping policies to benefit both industry and the environment.
- 2023-2024 **Bayesian Modelling Using Stan and R**– Halifax, Canada  
Created a Bayesian multilevel hierarchical model and used it to infer the resilience of coral reefs due to herbivorous fish species. Developed model in Stan and created posterior draws and visualizations with R. Entire project completed independently.
- 2022 **Research Internship in Science, MITACS-Globalink**– Rostock, Germany  
Assisted with research regarding optic flow and underwater vision, and vibrissae sensitivity of harbour seals and sea lions in the Baltic sea for the University of Rostock. Tasks included recording data observations, training scientific tasks to the animals, observing and recording animal behaviour, preparing and cataloging food for animals, assisting in writing scientific papers, and assisting with maintenance of research facility. Supported by a MITACS funding grant of 6000 CAD.

## Employment

- Jan 2025 **Teaching Assistant - BIOL2004**– Halifax, Canada  
Lead second year biology students through weekly labs for BIOL2004. Labs covered introductory lab techniques for microbiology and plant research topics and required me to give weekly presentation and demonstrations to the students.
- Sep 2024 **Teaching Assistant - BIOL1010**– Halifax, Canada  
Lead 35 first year biology students through weekly labs for BIOL1010. Labs covered introductory biology topics and required me to give weekly presentation and demonstrations to the students.
- May 2024- Aug 2024 **Undergraduate Researcher**– Halifax, Canada  
Used high resolution microscopy techniques (TEM, SEM) to uncover the internal structure of free-living kinetoplastids. Data was subsequently used for a publication.
- Sep 2023- Mar 2024 **Student Data Analyst CFIA/ACIA**– Remote, Canada  
Researched pathogen outbreak risk in food products, and developed presentations to assess risk in Canadian domestic and exported food goods. Analyzed data in R and Excel to interpret trends in pathogen testing, presence at farms, and in food recalls. Updated food inspection models to improve food safety in Canada.

## Presentations

- 2024 **International Society of Protistologists** – Seattle, USA  
Presented a talk at the joint PSA-ISOP-ISEP conference. *The Phylogeny and Taxonomic Position of Two Novel Pivotal Kinetoplastid Cultures.*
- 2024 **Lett Symposium** – Halifax, Canada  
Poster presentation, *The phylogeny and taxonomic position of GEM-kin, a culture representing the evolutionarily pivotal kinetoplastid taxon Allobodonidae.*
- 2024 **Biology and Applied Aquatic Science Conference** – Halifax, Canada  
Poster presentation, *The phylogeny and taxonomic position of GEM-kin, a culture representing the evolutionarily pivotal kinetoplastid taxon Allobodonidae.*
- 2024 **Cameron Conference** – Halifax, Canada  
Judged poster presentation. Poster chosen as one of the top two poster presentations at the conference.

## Outreach

- 2024 **MicroScope - Community Education** — Halifax, Canada  
Community outreach project lead and funded by the Institute for Comparative Genomics (Dalhousie University). We partnered with the Discovery Centre (Halifax, NS) to create educational and interactive science stations for kids of all ages to interact with and learn about different scientific processes and tests. I lead the live sample microscopy station where I guided visitors on how to operate the microscope and identify microorganisms from sediment samples.
- Jul 2023 **Community Outreach** —Diversity of Nature  
Organized and lead a 2-day outreach event for Diversity of Nature, a not-for-profit organization that aims to help young underrepresented communities who don't usually have access to STEM education get new experiences in their communities. We partnered with Girl Guides of Canada to visit an Ember unit to teach the girls about ocean health with a shoreline clean up, and a creative art project to learn about photosynthesis in the ocean.
- Sep 2021 **Community Science**– Dalhousie University  
Contributed to the iNaturalist community science project during university *BioBlitz* (Halifax, NS, Canada).

## Other Memberships

- Sep 2023 - **Trainee**– Institute of Comparative Genomics  
Attend weekly meetings to discuss recent research and findings in our field. The institute provides access to workshops, networking events, and other career development opportunities.

## Mentorship

Sep 2024 - **Mentor**– Dalhousie University  
Mentored three new undergraduate students in the lab by assisting them with literature reviews, training on routine laboratory tasks and experiments (DNA extraction, electron microscopy preparations, PCR), and provided research guidance and advice.

## Research Skills

Computer Skills **R** : frequentist statistics, modeling, data visualization, data manipulation (dplyr, ggplot2, tidyverse, tidyr, shiny, RMarkdown, forcats, rethinking, etc.)  
**Stan** : Bayesian model creation (C++ based)  
**Bioinformatics**: RNA and DNA data processing (*De novo* assembly, sequence data analysis, marker gene profiling, functional prediction)  
**Microsoft Office Suite** : Excel, Word, Teams, Powerpoint, OneNote, PowerBI  
**Miscellaneous** :  $\LaTeX$ , GitHub, Bash, Python, HTML, Tableau

Field Skills Soil and water sampling, animal training, water turbidity sensor, underwater camera and monitor usage, underwater sensor shaker design and function

Laboratory Techniques Cell culturing, microscopy (differential interference contrast, scanning electron, transmission electron, immunofluorescence), electron microscopy preparation and ultramicrotomy, experimental design, PCR, Western Blot, animal dissection, DNA and RNA harvesting, single cell isolation and genome amplification.

## Publications and Theses

**Packer, J**; Zavadzka, D; Weston, E; Eglit, Y; Richter, D; Simpson, A. (2025). Characterisation of *Allobodo yubaba* sp. nov. and *Novijibodo darinka* gen. et sp. nov., cultivable free-living species of the phylogenetically enigmatic kinetoplastid taxon Allobodonidae. *Journal of Eukaryotic Microbiology*. doi: 10.1111/jeu.13072

Thesis The phylogeny and characterization of GEM-kin, a representative of the evolutionarily pivotal kinetoplastid taxon Allobodonidae. (2024). Dalhousie University. Bachelor's Honours. Number of Pages: 62 Supervisor: Simpson, Alastair.

## References

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iNaturalist Data Collection– Dalhousie University  
iNaturalist ID: [juliaap BioBlitz](#) (Halifax, NS, Canada).

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