

Wing-Zheng Ho

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EDUCATION

McGill University

Master of Science in Biology

Montreal, QC

Aug. 2021 – Aug 2023

Concordia University

Bachelor of Science in Biology, Specialization in Ecology

Montreal, QC

Aug. 2017 – May 2020

EXPERIENCE

Lab Manager – Research Assistant

Sep. 2023 – Present

McGill University – Barrett Lab

Montreal, QC

- Develop, optimize and automate bioinformatic tools for NGS data analysis workflows on Linux HPC environment
 - * Whole Genome Sequencing (WGS)
 - * Whole Genome Bisulfite Sequencing (WGBS)
 - * Pool-seq
- Bioinformatic analysis
 - * Population genetic simulations - SLiM
 - * Colour pattern analysis - patternize
 - * Population joint demographic history modelling - dadi/GADMA
- Built and maintain a local data server, managing access, files, packages, and pipelines for researchers and graduate students
- Maintain and update lab website
- Maintain lab space to facilitate smooth functioning of researchers and graduate students
 - * Ordering equipments and supplies through University's procurement system
 - * Schedule equipments maintenance and pipettes calibration
 - * Research and optimize lab protocols
- Develop and maintain web apps for lab management
 - * QR code based inventory system
 - * Interactive map for lab equipments and supplies

Lab Assistant

Jan. 2020 – Aug. 2021

McGill University – Barrett Lab

Montreal, QC

- Created and maintaining the lab website <https://barrettlab.ca>
- Developed a semi-automated process for labeling sample pictures with serial numbers using OCR (Optical Character Recognition) technology via Google Vision API
 - * Reduced re-labeling time for approximately 10,000 pictures from weeks to just a few hours
- Develop and modify bioinformatics tools suited for the lab analyses
 - * Develop bioinformatics workflows using Snakemake
 - * Implementing new features in existing R packages

Web Developer

2010 – Present

Freelancer

- Specialization in e-commerce integration
 - * Setting up e-shops for local businesses (product catalog, point of sale, online payment)
 - * Portfolio sites for artists
 - * Search Engine Optimization (SEO)
 - * Content Management System (CMS)

PUBLICATIONS

- Martins, A.P., Martins, L.P., **Wing-Zheng Ho**, McMillan, O., Ready, J.S., Barrett, R.D.H. (2022) Scale-dependent effects of environmental gradients on phenotypic distributions in *Heliconius* butterflies. *Ecology and Evolution* <https://doi.org/10.1002/ece3.9286>

PROJECTS

PopuluR | *R, Shiny, HTML/CSS*

- An R Shiny app inspired by Populus. An Ecological Modeling simulation software created by University of Minnesota, often used for educational purposes in teaching settings. Initially started as a UI revamp of the original Java version, then gradually turned into a complete remake into a web app utilizing R and shiny, making it more accessible for students that do not have access to a compatible computer for the original software. My iteration of the software includes UI improvements such as mouse-over tooltips for user input, full interactivity with generated graphs, and ease of access to help and references text.

TECHNICAL SKILLS

Languages: Java, Python, C/C++, SQL, JavaScript, HTML/CSS, R, Perl

Frameworks: Nextflow, Snakemake, Shiny, ArcGIS/QGIS/RGIS, WebGIS, React, Node.js, WordPress, Leaflet, OpenLayers, TensorFlow, Keras

Developer Tools: Git, Apptainer, Docker, Google Vision API, Google Cloud Platform, Microsoft Azure, Amazon Web Services (AWS), SLURM, VS Code, Visual Studio, PyCharm, RStudio