GAVIN MURRAY DOUGLAS

www.gavindouglas.ca
gavinmdouglas@gmail.com

EDUCATION AND TRAINING

Postdoctoral Researcher (May 2021 – *Ongoing*)
McGill University, Montréal, QC, Canada | Supervisor: Dr. Jesse Shapiro

PhD Microbiology and Immunology (Jan. 2017 – May 2021)
Dalhousie University, Halifax, NS, Canada | Supervisor: Dr. Morgan Langille
Thesis: Integrating Functional and Taxonomic Data Types for Microbiome Data Analysis

MSc Ecology and Evolutionary Biology (Sept. 2013 – Nov. 2015)
University of Toronto, Toronto, ON, Canada | Supervisor: Dr. Alan Moses
Thesis: Investigating the Evolutionary Forces Acting on Mammalian Transcription Factor Binding

BSc Specialist in Evolutionary Biology (Sept. 2009 – June 2013)
University of Toronto, Toronto, ON, Canada

ACADEMIC AWARDS

NSERC Postdoctoral Fellowship 2021-2023
Government of Canada ($90,000 / 2 years)

Globalink Research Award 2019
Mitacs Canada ($6,000)

NSERC Michael Smith Foreign Study Supplement 2019
Government of Canada ($6,000)

NSERC Alexander Graham Bell CGS D 2017-2020
Government of Canada ($105,000 / 3 years)

Honorary Izaak Walton Killam Predoctoral Scholarship (Level 2) 2017-2019
The Killam Trusts (Honorary)

President's Award 2017-2019
Dalhousie University (Tuition / 3 years)

Kathryn A. Weldon Travel Award 2018
Dalhousie Medical Research Foundation ($2,000)

Early Career Scientist Bursary 2018
International Human Microbiome Consortium (€500)

NSERC Canada Graduate Scholarships Master's Program 2013-2014
Government of Canada ($17,500)

NSERC Undergraduate Student Research Award 2012
Government of Canada ($5,625)

Chancellor's Scholarship 2011
Trinity College, University of Toronto ($200)

PEER-REVIEWED PUBLICATIONS

Douglas GM, Kim S, Langille MGI, Shapiro BJ. 2023. Efficient computation of contributional diversity metrics from microbiome data with *FuncDiv*. *Bioinformatics* 39: btac809.

Douglas GM, Hayes MG, Langille MGI, Borenstein E. 2022. Integrating phylogenetic and functional data in microbiome studies. *Bioinformatics* 38:5055-5063.

Migicovsky Z, **Douglas GM**, Myles S. 2022. Genotyping-by-sequencing of Canada's apple biodiversity collection. *Frontiers in Genetics* 13:934712.

Wright AH, Shawkat A, Migicovsky Z, **Douglas GM**, Yurgel S, Bunbury-Blanchette A, Franklin J, Adamas SJ, Walker AK. 2022. A characterization of a cool climate organic vineyard's microbiome. *Phytobiomes* 6:69-82.

Nearing JT*, **Douglas GM***, Hayes MG, MacDonald J, Desai DK, Allward N, Jones CMA, Wright RJ, Dhanani AS, Comeau AM, Langille MGI. 2022. Microbiome differential abundance methods produce different results across 38 datasets. *Nature Communications* 13:342 (**joint first authors*).

Douglas GM and Langille MGI. 2021. A primer and discussion on DNA-based microbiome data and related bioinformatics analyses. *Peer Community Journal* 1:e5.

Douglas GM and Shapiro BJ. 2021. Genic selection within prokaryotic pangenomes. *Genome Biology and Evolution* 13:evab234.

Cook J, **Douglas GM**, Zhang J, Glick BR, Langille MGI, Liu K-H, Cheng Z. 2021. Transcriptomic profiling of *Brassica napus* responses to *Pseudomonas aeruginosa*. *Innate Immunity* 27:143-157.

Douglas GM, Bielawski JP, Langille MGI. 2020. Re-evaluating the relationship between missing heritability and the microbiome. *Microbiome* 8:87 (*Finding Genius Podcast* interview: Link).

Douglas GM, Maffei VJ, Zaneveld J, Yurgel SN, Brown JR, Taylor CM, Huttenhower C, Langille MGI. 2020. PICRUSt2 for prediction of metagenome functions. *Nature Biotechnology* 38:685-688.

Nejman D*, Livyatan I*, Fuks G*, *et al.* 2020. The human tumor microbiome is composed of tumor type-specific intracellular bacteria. *Science* 368:973-980 (**joint first authors*).

Palau M, Piqué N, Comeau AM, **Douglas GM**, Ramírez-Lázaro MJ, Lario S, Calvet X, Langille MGI, Miñana-Galbis D. 2020. Detection of *Helicobacter pylori* microevolution and multiple infection from gastric biopsies by housekeeping gene amplicon sequencing. *Pathogens* 9:97.

Douglas GM and Langille MGI. 2019. Current and promising approaches to identify horizontal gene transfer events in metagenomes. *Genome Biology and Evolution* 11:2750-2766.

Bolyen E*, Rideout JR*, Dillon MR*, Bokulich NA*, *et al*. 2019. Reproducible, interactive, scalable and extensible microbiome data science using QIIME 2. *Nature Biotechnology* 37:852-857 (**joint first authors*).

Yurgel SN, Nearing JT, **Douglas GM**, Langille MGI. 2019. Metagenomic functional shifts to plant induced environmental changes. *Frontiers in Microbiology* 10:1682.

Singh R, Chandrashekharappa S, Bodduluri SR, Baby BV, Hegde B, Kotla NG, Hiwale AA, Saiyed T, Patel P, Vijay-Kumar M, Langille MGI, **Douglas GM**, Cheng X, Rouchka EC, Waigel SJ, Dryden GW, Alatassi H, Zhang H, Haribabu B, Vemula PK, Jala VR. 2019. Enhancement of the gut barrier integrity by a microbial metabolite through the Nrf2 pathway. *Nature Communications* 10:89.

Nearing JT, **Douglas GM**, Comeau AM, Langille MGI. 2018. Denoising the Denoisers: An independent evaluation of microbiome sequence error-correction approaches. *PeerJ* 6:e5364.

Yurgel SN, **Douglas GM**, Dussault A, Percival D, Langille MGI. 2018. Dissecting community structure in wild blueberry root and soil microbiome. *Frontiers in Microbiology* 9:1187.

McElroy MS, Navarro AJR, Mustiga G, Stack C, Gezan S, Peña G, Sarabia W, Saquicela D, Sotomayor I, **Douglas GM**, Migicovsky Z, Amores F, Tarqui O, Myles S, Motamayor JC. 2018. Prediction of cacao (*Theobroma cacao*) resistance to *Moniliophthora spp.* diseases via genome-wide association analysis and genomic selection. *Frontiers in Plant Science* 9:343.

Douglas GM*, Hansen R*, Jones C, Dunn K, Comeau AM, Bielawski JP, Tayler R, El-Omar EM, Russell RK, Hold GL, Langille MGI, Van Limbergen J. 2018. Multi-omics differentially classify disease state and treatment outcome in pediatric Crohn's disease. *Microbiome* 6:13 (* *joint first authors*).

McClure KA, Gardner KM, **Douglas GM**, Toivonen PMA, Hampson CR, Song J, Forney CF, DeLong J, Rajcan I, Myles S. 2018. A genome-wide association study of fruit quality and historical scab resistance in an apple collection. *The Plant Genome* 11:170075.

Inkpen A, **Douglas GM**, Brunet T, Leuschen K, Doolittle F, Langille MGI. 2017. The coupling of taxonomy and function in microbiomes. *Biology and Philosophy* 32:1225-43.

Yurgel SN, **Douglas GM**, Comeau AM, Mammoliti M, Dussault A, Percival D, Langille MGI. 2017. Variation in bacterial and eukaryotic communities associated with natural and managed wild blueberry habitats. *Phytobiomes* 1:102-113.

Comeau AM, **Douglas GM**, Langille MGI. 2017. Microbiome Helper: A custom and streamlined workflow for microbiome research. *mSystems* 2:e00127-16.

Douglas GM, Wilson MD, Moses AM. 2016. Decreased transcription factor binding levels nearby primate pseudogenes suggests regulatory degeneration. *Molecular Biology and Evolution* 33:1478-85.

Douglas GM*, Gos G*, Steige KA*, Salcedo A, Holm K, Ågren JA, Hazzouri KM, Wang W, Platts AE, Josephs EB, Williamson RJ, Neuffer B, Lascoux M, Slotte T, Wright SI. 2015. Hybrid origins and the earliest stages of diploidization in the highly successful recent polyploid *Capsella bursa-pastoris*. *PNAS USA* 112:2806-11 (**joint first authors*).

Khan T, **Douglas GM**, Patel P, Nguyen Ba AN, Moses AM. 2015. Polymorphism analysis reveals reduced negative selection and elevated rate of insertions and deletions in intrinsically disordered protein regions. *Genome Biology and Evolution* 7:1815-26.

Book Chapters

Douglas GM, Comeau AM, Langille MGI. 2018. Processing a 16S rRNA sequencing dataset with the Microbiome Helper workflow. Microbiome Analysis – Methods and Protocols (Springer; Editors: Beiko RG, Hsiao RG, Parkinson J):131-141.

Douglas GM, Beiko RG, Langille MGI. 2018. Predicting the functional potential of the microbiome from marker genes using PICRUSt. Microbiome Analysis – Methods and Protocols (Springer; Editors: Beiko RG, Hsiao RG, Parkinson J):169-177.

Oral Presentations

Strategies for efficiently writing a strong thesis. February 2023. Webinar for graduate students, organized by the McGill Microbiology & Immunology Graduate Student Association (Montréal, Canada)

POMS enables interpretation of functional differences between the stool microbiome of obese and control individuals. December 2022. McGill Centre for Microbiome Research Symposium: Emerging Breakthroughs in Microbiome Science (Research Institute of the McGill University Health Centre, Montréal, Canada).

The need-to-know facts of microbiome research. July 2019. As part of the Continuing Medical Education session: Gut flora and the answers your patients are looking for (Dartmouth General Hospital, Dartmouth, Canada).

Prediction of microbial genomes from 16S rRNA gene sequences and application for disease state classification. March 2019. Crossroads Interdisciplinary Health Research Conference (Halifax, Canada).

Predicting microbial functions for application in clinical classification models. March 2019. Three Minute Thesis Competition - Participant (Dalhousie University, Halifax, Canada).

Differences in host gene expression linked to predicted shifts in microbial pathways in an inflammatory bowel disease cohort. May 2018. Professional & Research Education Program Graduate Student Research Day (Dalhousie University, Halifax, Canada).

Multi-omics differentially classify disease state and treatment outcome in pediatric Crohn's disease. May 2017. Professional & Research Education Program Graduate Student Research Day (Dalhousie University, Halifax, Canada).

POSTERS (*Presenter is first listed, unless otherwise indicated*)

Watts S, Migicovsky Z, **Douglas GM**, Myles S. January 2022. Genome-wide association studies in Canada's Apple Biodiversity Collection. Plant & Animal Genome Conference XXIX (Held virtually, but organized in San Diego, USA).

Nearing JT, **Douglas GM**, Hayes M, MacDonald J, Desai D, Allward N, Jones CMA, Wright R, Dhanani A, Comeau AM, Langille MGI. June 2020. Microbiome differential abundance methods produce strikingly different results across 38 datasets. Symposium: "Having IMPACTT: Advancing Microbiome Research" (Held virtually, but organized at the University of Calgary, Canada).

Douglas GM, Langille MGI, Borenstein E. October 2020. Identifying robust functional biomarkers in microbiome sequencing data with POMS. Cold Spring Harbor Laboratory Conference - Microbiome (Held virtually, but organized in Cold Spring Harbor, USA).

Douglas GM, Langille MGI, Borenstein E. September 2020. Identifying robust functional biomarkers in microbiome sequencing data with POMS. Wellcome Genome Informatics Conference (Held virtually, but organized in Hinxton, UK).

Douglas GM, Langille MGI. December 2019. Making sense of functional microbiome associations with POMS. Genomics in Medicine Conference (Dalhousie University, Canada).

Douglas GM, Zaneveld J, Maffei VJ, Xu ZZ, Leuschen K, Brown JR, Huttenhower C, Langille MGI. June 2018. PICRUSt 2.0: Novel features for predicting functional potential. 7th International Human Microbiome Conference (Killarney, Ireland).

Douglas GM, Zaneveld J, Maffei VJ, Xu ZZ, Leuschen K, Huttenhower C, Brown JR, Langille MGI. March 2018. PICRUSt 2.0: Novel features for predicting functional potential. Keystone Symposia: Microbiome, Host Resistance and Disease (Banff, Canada).

Leuschen K, **Douglas GM**, Langille MGI. May 2017. Assessing functional stability in the human microbiome. Professional & Research Education Program Graduate Student Research Day (Halifax, Canada).

Stadnyk AW, **Douglas GM**, Comeau AM, Jain U, Schaeble W, Stover C, Beiko R, Langille MGI. March 2017. Properdin deficiency does not impact the mouse response to DSS-induced colitis despite differences in colonic microbiome. Canadian Digestive Diseases Week (Banff, Canada).

Jones C, **Douglas GM**, Comeau AM, Hansen R, Russell R, Hold G, Van Limbergen J, Langille MGI. November 2016. Assessing the relative contribution of genetics and micro-omics for predicting pediatric Crohn's Disease. International Human Microbiome Consortium (Houston, USA).

Jones C, **Douglas GM**, Comeau AM, Hansen R, Russell R, Hold G, Langille MGI, Van Limbergen J. October 2016. An integrated microbiome and genetic analysis of pediatric Crohn's disease. World Congress of Pediatric Gastroenterology, Hepatology and Nutrition (Montréal, Canada).

Jones C, **Douglas GM***, Comeau AM, Hansen R, Russell R, Hold G, Langille MGI, Van Limbergen J. August 2016. Assessing the relative contribution of genetics and the microbiome for predicting pediatric Crohn's disease. International Society for Microbial Ecology (Montréal, Canada; *presenter).

Comeau AC, **Douglas GM**, Langille MGI. June 2016. Integrated Microbiome Resource: Developing an open and streamlined experimental and analysis pipeline for microbiomics research. American Society for Microbiology (Boston, USA).

Douglas GM, Wilson MD, Moses AM. January 2015. Detecting selection on mammalian transcription factor binding sites. Stochastic Physics in Biology - Gordon Research Conference (Ventura, USA).

Douglas GM, Wilson MD, Moses AM. June 2014. Degeneration of mammalian cis-regulatory modules. Society for Molecular Biology and Evolution Conference (San Juan, Puerto Rico).

Khan T, **Douglas GM***, Nguyen Ba AN, Moses AM. June 2014. Analysis of polymorphisms reveal constraints on amino acids and increased rates of insertions and deletions in intrinsically disordered regions. Society for Molecular Biology and Evolution Conference (San Juan, Puerto Rico; *presenter).

Douglas GM, Lascoux M, Holm K, Steige KA, Slotte T, Gos G, Hollister J, Wright SI. July 2013. Rapid relaxation of purifying selection in the young allopolyploid *Capsella bursa-pastoris*. Society for Molecular Biology and Evolution Conference (Chicago, USA).

Additional Work Experience

Independent Contractor (Sept. 2015 – Aug. 2020)

I conducted bioinformatics analyses on an independent basis. I also contributed results and co-authored a consulting report on the genetic basis of carotenoid content in spinach, which contained recommendations for a future breeding program.

Bioinformatician (Sept 2015 – Dec. 2016)

Integrated Microbiome Resource, Dalhousie University
Supervisors: Dr. Morgan Langille and Dr. Sean Myles
I was responsible for building tools and pipelines for analyzing a variety of different bioinformatics datasets. My main focuses were on analyzing microbiome data and associating mutations in the apple and cannabis genomes with agriculturally relevant phenotypes.

Teaching Experience

Guest Lecturer (April 4, 2023, McGill University)

I presented a guest lecture titled 'Ecology and Evolution in the Human Microbiome' for a graduate-level course (MIMM617: The Human Microbiome) in the department of Microbiology & Immunology.

Presentation Grader (Feb. and March 2023, McGill University)

I evaluated student presentations over three sessions for The Business of Science (MIMM387), which is an interdiscplinary course in the Microbiology & Immunology department. These presentations summarized current controversies in the biotechnology and pharmaceutical sectors.

Session Leader (Sept. 2022 – *Ongoing*, McGill University)

I lecture and help help drive discussions in small group meetings for medical students. This is part of Research Fundamentals 1 (INDS123), which is a required course at the McGill Medical School. This course is intended to provide future clinicians with an understanding of how to evaluate the primary literature. My lessons cover fundamental and clinical research approaches from a general viewpoint, with a focus on the link between the gut microbiome and disease as a case example.

Guest Lecturer (Oct. 26, 2020, Dalhousie University)

I presented a guest lecture introducing the human microbiome to students in the fourth-year undergraduate course, Host-Pathogens Interactions (MICI4119).

Teaching Assistant (Jan. – April 2020, Dalhousie University)

I helped lead lab sessions and marked students' reports for MICI2400 (Laboratory Methods in Microbiology & Immunology), which is an entirely lab-based course.

Microbiome Analysis Workshop Instructor (May 16, 2019, Sheba Medical Center, Tel Aviv, Israel)

I delivered a lecture and workshop on how to use PICRUSt2, which is a software that I developed. I also wrote a tutorial on running this tool that the students worked through.

R Programming for Biologists Workshop Instructor (August 2018, Dalhousie University)

I presented a series of four workshops to biology graduate students. I began each workshop with a lecture and then lead the students through in-class assignments to solidify the lecture content. All the resources I developed are openly available.

Canadian Bioinformatics Workshop Instructor and Teaching Assistant (June 5-7, 2018, Ontario Institute for Cancer Research, Toronto, Canada)

I presented a lecture on the major classes of bioinformatics tools used for taxonomic and functional profiling of shotgun metagenomics data and developed a tutorial to complement this lecture. I tied as the top-ranked instructor overall based on student rankings. I was also a teaching assistant for all tutorials presented over three days.

Bioinformatic Tutorial Developer (Sept. 2015 – Oct. 2017, Dalhousie University)

While working as a bioinformatician in the Langille Lab at Dalhousie University I developed several online tutorials to teach researchers how to analyze microbiome data. These tutorials were presented at several international conferences to hundreds of trainees. These tutorials are available on the Microbiome Helper website.

Module Instructor (Nov. – Dec. 2016, Dalhousie University)

I created and delivered a four-week graduate-level module entitled "Introduction to Python Programming for Biologists". I lectured two classes each week and created all the quizzes and assignments for the students (3 quizzes and 4 assignments). This module was one of several modules offered as part of BIOL5705 (Graduate Modules class) in the Biology department. The resources I developed are available here.

Teaching Assistant (Sept. – Dec. 2013 and Sept. – Dec. 2014, University of Toronto)
I supervised laboratory classes for BIO120 (Adaptation and Biodiversity), which complemented key lecture topics.

SUPERVISORY EXPERIENCE

Sana Naderi (Feb. 2023 – *Ongoing*, McGill University)
MSc student analyzing SARS-CoV-2 sequencing data from wastewater samples collected across Québec in a time-series. Our goal is to use these and public health data to develop a model that characterizes SARS-CoV-2 genetic variation when new variants of concerns are spreading versus when more innocuous variants are predominant. We plan to integrate this model into an R package to aid with early detection of SARS-CoV-2 (and other pathogens') local epidemics.

Isabel Kim (Sept. 2021 – April 2022, McGill University)
Undergraduate student conducting an independent research project. The project, which I designed, focused on developing and evaluating diversity metrics based jointly on taxonomic and functional microbial ecology data (i.e., contributional diversity).

Arvin Mahmoodi (May - August 2020, Dalhousie University)
NSERC undergraduate student research award recipient that worked on a project I designed to characterize novel genes in metagenome-assembled genomes.

Jocelyn MacDonald (January - April 2019, Dalhousie University)
Undergraduate experiential learning student that conducted a comparison of methods for differential abundance tests applied to microbiome sequencing datasets.

VOLUNTEER AND SERVICE EXPERIENCE

Managing Board Member – Peer Community In (PCI) Genomics (May 2023 – *Ongoing*)
PCI Genomics is a platform for reviewing and recommending preprints. As a board member, I am responsible for approving new recommenders (which are similar to traditional editors), evaluating recommenders' work and assessments, and dealing with internal conflicts between authors, reviewers, and recommenders. I am also a member of the broader PCI non-profit organization, where I vote on pertinent matters, such as proposals for the creation of new thematic PCIs (which are analogous to new journals).

Co-President - Science & Policy Exchange (SPE) (December 2022 – *Ongoing*)
SPE is a volunteer-run, non-profit organization (headquartered in Montréal) with the mandate of providing feedback from early-career researchers on Canadian science policies. As Co-President, my role is to supervise dozens of volunteers as they conduct numerous iniatives, including organizing forums and other meetings, recording podcasts, writing editorials and policy briefs, and consulting with policymakers.

Some of my key responsibilities and initatives I have organized include:

- Representing SPE at a hearing of the House of Commons Standing Committee on Science & Research (May 9, 2023) related to the value and number of federal awards for graduate students and postdoctoral scholars.

- Representing SPE on the advisory board for a knowledge mobilization initiative organized by the University of Ottawa's Institute of Science, Society and Policy.
- Organized volunteers to write (and co-authoring) several articles, including an editorial submitted to the Journal of Science & Policy Governance
- Coordinating with the Canadian Association of Postdoctoral Scholars to analyze survey data regarding postdoctoral scholars immigrating to Canada, and proposing panel events at the Canadian Science Policy Conference related to this topic.
- Drafting the constitution for 'SciPolCanada', which is an open platform for early-career researchers in Canada to engage with other science policy enthusiasts.

Volunteer – American National Science Policy Network (December 2022 – *Ongoing*)

I contribute to this organization's Communication Committee through several initiatives. I am currently helping to design three-month policy brief writing programs, which will include workshops and writing opportunities. I am also involved in writing and editing science policy blog posts and organizing monthly batches of blog posts (*SciPolBites*).

Postdoc. **Rep**. **– Microbiology & Immunology Graduate Student Association** (June 2022 – May 2023)

I represent postdoctoral fellows within the department of Microbiology and Immunology at McGill as part of the department's graduate student association. My tasks include: representing postdocs in discussions with human resources and administrative representatives, organizing a town hall between the department chair and postdocs, and attending monthly departmental meetings. I was the first postdoctoral representative for this department, and so I developed a standard operating procedure for future representatives to follow.

Public Forum Lead Volunteer - Science & Policy Exchange (June 2022 – November 2022)

I was the lead volunteer helping to organize a public forum on how science policies affect food security in Canada (link). My roles included helping with logistical preparations and communicating with the panelists. During this time, I also wrote a blog post summarizing issues facing open access scientific publishing.

Judge - Graduate Student Research Day (May 27th, 2022)

I provided feedback on graduate student oral and poster presentations for the Department of Microbiology and Immunology's annual research day at McGill University.

Vice President Finance and Operations - Association of Postdoctoral Fellows (May 2022 – *Ongoing*)

I represent postdoctoral fellows across McGill University as part of this association. My primary responsibility is managing the association's financial transactions. I am also a councillor on the Post-Graduate Students' Society council (which meets monthly). I also represented postdocs at the annual Canadian Association of Postdoctoral Administrators meeting, which was in Montréal over Oct. 31st – Nov. 1st, 2022. At this meeting, I was a panelist on a discussion panel entitled "Preparing postdocs for a diverse job market". I also redesigned and maintain the organization's website. Finally, I contribute ideas regarding resources that could be provided to postdoctoral researchers, help determine our organization's priorities, and help plan specific events and initiatives.

Peer Community in Genomics (PCI Genomics) Recommender (as of April 2021)

As a recommender, my role is similar to that of a traditional editor, except that I also write a short article recommending the preprint after it passes the review process (listed below).

Douglas, GM. 2023. A unique and customizable approach for functionally annotating prokaryotic genomes. *Peer Community in Genomics*, 100233. 10.24072/pci.genomics.100233

Douglas, GM. 2023. A workflow for studying enigmatic non-autonomous transposable elements across bacteria. *Peer Community in Genomics*, 100166. 10.24072/pci.genomics.100166

Douglas, GM. 2022. EukProt enables reproducible Eukaryota-wide protein sequence analyses. *Peer Community in Genomics*, 100021. 10.24072/pci.genomics.100021

Graduate Studies Committee Member (Sept. 2019 – Aug. 2020)

I represented graduate students' perspectives in discussions related to graduate student mental health, program requirements, and funding. This was during my PhD in the Department of Microbiology and Immunology at Dalhousie University.

iGEM Mentor (May 2018 – Oct. 2018)

I supervised the bioinformatics work of the Dalhousie University undergraduate team for the 2018 International Genetically Engineered Machine (iGEM) competition. This involved helping students determine which hypotheses they should test and how to conduct the required statistical analyses. I also supervised the fundraising work for our team, which included creating a promotional video. Our team received a silver medal (which multiple teams could receive) at the annual competition.

Volunteer Research Assistant (Jan. 2012 - May 2013)

Department of Ecology and Evolutionary Biology, University of Toronto
Supervisor: Dr. Aneil Agrawal
I contributed to several of a PhD student's research projects by sorting and scoring fruit flies. One key project focused on testing theoretical predictions of the amount of genetic variation that is expected to be maintained under both migration and selection.

Genetic Counseling Clinic Volunteer (Jan. - April 2012)

Mount Sinai Hospital, Toronto, Ontario
Supervisor: Seema Panchal
I worked directly with the clinic's genetic counsellor. I helped her process patient data and to develop pedigrees displaying each family member's risk of developing breast cancer.

Scientific Peer-Reviewing (*Number of reviews, excluding revised versions*)

Annals New York Academy of Sci. (1)
Bioinformatics (1)
BMC Genomics (1)
BMC Microbiology (1)
BMC Supplements (1)
Comp. and Struct. Biotech. Journal (1)
Environmental Sci. and Pollution Res. (1)
Frontiers in Bioinformatics (1)
Frontiers in Genetics (1)
GigaScience (1)
Genome Biology & Evolution (1)
Gut Microbes (1)
Horticulture Research (1)
ISME Communications (1)
Journal of Open Source Software (2)
Microbial Genomics (1)
Microbiome (1)
Molecular Biology and Evolution (1)
mSystems (6)
Nature Ecology & Evolution (1)
npj Biofilms and Microbiomes (1)
PCI Genomics (2)
PLOS Computational Biology (2)
Scientific Reports (5)