elizabeth**levitis**
PhD Candidate

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LevitisLiza 🐦

languages
english native speaker,
russian native speaker,
basic spanish

programming
Python, R, Bash, PHP,
MATLAB, Javascript,
SQL, LaTeX, etc.

soft skills
problem solving,
teaching, leadership

education

2020 – now	**Ph.D. candidate** in Neuroscience	University College London, London, United Kingdom | NIMH, Bethesda, MD, USA

UCL-NIMH Joint Doctoral Training Program in Neuroscience - supervised by Armin Raznahan (NIMH) and Daniel Alexander (UCL)

2018 – 2020 **M.Sc.** in Neuroscience — McGill University, Montreal, QC

Thesis work supervised by Alan C. Evans and Yasser Iturria-Medina on a project entitled:
Application of an Epidemic Spreading Model to Characterize Amyloid Beta Accumulation in Autosomal Dominant Alzheimer's Disease Mutation Carriers.

2013 – 2017 **B.A&Sc** in Cognitive Science — McGill University, Montreal, QC

Thesis work was supervised by Veronique Bohbot on a project entitled:
Personality Measures Associated with Spatial and Response Learning Strategies in Virtual Navigation

2019 **ReproNim Instructor Training** — ReproNim

Running workshops on reproducible neuroimaging.

experience

Research Experience

07/20 – now **Section on Developmental Neurogenomics, National Institute of Mental Health** — Bethesda, MD
Software Developer & Researcher
Applied best practices for reproducible neuroimaging to make existing datasets be Brain Imaging Data Structure compliant and processed multiple modalities with open-source image processing pipelines. Thesis work focuses on characterizing and predicting multimodal imaging phenotypes in individuals with sex chromosome aneuploidies.

05/17 – 05/20 **McGill Centre for Integrative Neuroscience (MCIN)** — Montreal, QC
Software Developer & Researcher
Involved in the ongoing development of a Quality Control module for imaging and behavioral data, along with a standalone RESTful API for automatic structural MRI quality control. Duties include developing new features for the Infant Brain Imaging Study project. For thesis work I have contributed to the development of APPIAN, an automatic PET processing pipeline. My central thesis project focused on determining how sporadic and autosomal dominant Alzheimer's disease differ with regard to observed spreading patterns of amyloid beta.

05 – 08/16 **Breast Cancer Informatics Group, McGill University** — Montreal, QC
Research Assistant
Continued development of a supervised machine learning algorithm in R to predict breast cancer patients' intrinsic subtypes across distinct subtyping schemes using microarray data.

01/15 – 06/15	**Department of Biology, McGill University**	Montreal, QC

Work-Study Research Assistant

Assisted with behavioral analysis of Zebra finch directed and undirected song between an adult and juvenile. Gained histology experience using a sliding microtome to section brain tissue and mount slices onto slides.

09/14 – 12/14	**Department of Psychology, McGill University**	Montreal, QC

Work-Study Research Assistant

Carried out neuron quantification via cFos activation in chick brains' slices using the software Stereo Investigator. Performed microscopy work to determine neural density in coronal slices.

10/13 – 04/15	**Department of Languages, Literature, and Culture, McGill University**	Montreal, QC

Work-Study Research Assistant

Worked with a professor of Russian literature - tasks included translating Russian text and assisting with cross-referencing.

Teaching and Mentoring Experience

10/22 – 12/22	**University College London**	London, England

Introduction to Machine Learning Teaching Assistant

Led weekly laboratory sessions, provided support to students throughout the course, and assisted the instructor with exam grading.

10/21 – 04/22	**ACPS**	Alexandria, VA

PATHS mentor

Provided biweekly mentoring to a 9th grader in the Alexandria County Public Schools system.

09/20 – 04/22	**Florida International University**	Miami, FL

ABCD-ReproNim Teaching Assistant

Contributed directly throughout the virtual course by providing support to students during video presentations and answering questions in real-time via the website's chat feature and e-mail. Developed data exercises for weekly assignments, hosted weekly Q&A sessions for enrolled students, and provided mentorship to students during the final project week.

01/18 – 07/20	**McGill University, OHBM, ReproNim, Brainhack**	Montreal, QC

Neuroinformatics Instructor

Planning and teaching of workshops introducing neuroscientists and trainees to topics pertaining to reproducible neuroimaging and neuroinformatics.

09/18 – 05/19	**BrainReach**	Montreal, QC

Neuroscience instructor for high school students & course content developer

05/16 – 07/16	**McGill University**	Montreal, QC

Organic Chemistry Teaching Assistant

Taught tutorials and helped grade exams for an intro to organic chemistry course.

09/15 – 12/16	**McGill University**	Montreal, QC

Science Undergraduate Society Peer Tutor

Tutored peers one-on-one in courses such as intro to computer science, intro to organic chemistry, and developmental economics.

07/15 – 08/15	**Hudson Guild**	New York, NY

SHSAT Instructor

Planned and taught a month-long course to prepare a group of students to ace the SHSAT, an exam taken to gain admittance to the top high schools in NYC. Assessed students' individual progress based on daily homework assignments and in-class participation.

memberships & service

2021 – 2023	**OHBM Student Postdoc SIG** Treasurer	Minneapolis, MN
2019 – 2020	**OHBM Open Science SIG** Hackathon Co-Chair & Organizer with Dr. Remi Gau	Minneapolis, MN
2016 – 2017	**McGill University Bachelor of Arts & Science Integrative Council** Vice President (Academic)	Montreal, QC
2015 – 2017	**Swimability** Special Needs Swimming Instructor	Montreal, QC
2015 – 2016	**McGill Cognitive Science Student Association** Vice President (External)	Montreal, QC
2015 – 2016	**McGill Science Undergraduate Society** Peer Tutor	Montreal, QC

awards

2020-2024	**Pre-doctoral Intramural Research Training Award**	National Institute of Mental Health, Bethesda, MD, USA
2019	**Travel Award**	Quebec Bio-imaging Network, Montreal, QC
2019	**Instructor Training Fellowship**	Repronim, Worcester, MA
2017	**Dean's Undergraduate Multidisciplinary Research Award**	McGill University, Montreal, QC
2016	**Undergraduate Research Award**	McGill University, Montreal, QC
2016	**Tomlinson Engagement Award for Mentoring**	McGill University, Montreal, QC

interests

professional: neuroscience, translational research, cognitive science, informatics, software design, machine learning, statistics. **personal:** dance, crossfit, cooking.

publications

pre-prints

1. The variegation of human brain vulnerability to rare genetic disorders and convergence with behaviorally defined disorders
   Elizabeth Levitis, Siyuan Liu, Ethan T. Whitman, Allysa Warling, Erin Torres, Liv S. Clasen, François Lalonde, Joelle Sarlls, Daniel C. Alexander, Armin Raznahan
   bioRxiv (2022).

articles in peer-reviewed journals

1. A cross-species study of sex chromosome dosage effects on mammalian brain anatomy
   Elisa Guma, Antoine Beauchamp, Siyuan Liu, Elizabeth Levitis, Liv S. Clasen, Erin Torres, Jonathan Blumenthal, Francois Lalonde, Lily R. Qiu, Haley Hrncir, Allan J. MacKenzie-Graham, Xia Yang, Arthur P. Arnold, Jason P. Lerch, Armin Raznahan
   The Journal of Neuroscience (2023). Society for Neuroscience.

2. Differentiating amyloid beta spread in autosomal dominant and sporadic Alzheimer's disease
   Elizabeth Levitis*, Jacob W. Vogel, Thomas Funck, Vladimir Halchinski, Serge Gauthier, Jonathan Voglein, Johannes Levin, Brian Gordon, Tammie Benzinger, Yasser Iturria-Medina, Alan C. Evans, Dominantly Inherited Alzheimer Network, Alzheimer's Disease Neuroimaging Initiative
   Brain Communications (2022). Oxford University Press.

3. Centering inclusivity in the design of online conferences—An OHBM–Open Science perspective
   Elizabeth Levitis*, Cassandra Gould van Praag*, Remi Gau, Stephan Heunis, et al.
   Gigascience (2021). Oxford University Press and the Beijing Genomics Institute.

4. Brainhack: developing a culture of open, inclusive, community-driven neuroscience
   Remi Gau*, Stephanie Noble*, Katja Heuer*, Katherine Bottenhorn*, Isil Poyraz Bilgin*, Yu-Fang Yang*, Julia Huntenburg*, Johanna Margarete Marianne Bayer*, Richard Bethlehem*, Shawn A Rhoads, Cristoph Vogelbacher, Valentina Borghesani, **Elizabeth Levitis**, et al.
   Neuron (2021). Cell Press.

5. Spread of pathological tau proteins through communicating neurons in human Alzheimer's disease
   J. W. Vogel, Y. Iturria-Medina, O.T. Strandberg, R. Smith, **E**. **Levitis**, A. C. Evans, O. Hannsson
   Nature Communications (May 2020). Nature Publishing Group.

invited talks & organized workshops

1. Parsing gene dosage effects on human brain organization through multimodal neuroimaging of multiple chromosomal aneuploidies
   (June 2022), Organization for Human Brain Mapping, Presentation.

2. Epidemic Spreading Models For Characterization of Misfolded Protein Spread in Autosomal Dominant and Sporadic Alzheimer's Disease
   (Apr. 2022), Washington University of Saint Louis, Presentation.

3. Visualization in Python
   (Dec. 2021), Brainhack Global DC, Workshop.

4. Hackathons: A new space for collaborative projects and learning
   Open Science Special Interest Group Symposium (June 2020), Organization for Human Brain Mapping, Symposium and presentation.

5. OHBM Annual BrainHack & TrainTrack
   Open Science Special Interest Group (June 2020), Organization for Human Brain Mapping, Workshop.

6. Managing your Reproducible Experiments with Datalad and Boutiques
   ReproNim (Feb. 2020), McGill University, Workshop.

7. Introduction to Scientific Software Development and Machine Learning
   Healthy Brains for Healthy Lives (Feb. 2019), McGill University, Workshop.

conference posters

1. Characterizing multimodal phenotypes in chromosomal aneuploidies.
   Elizabeth Levitis, Ethan T. Whitman, Siyuan Liu, Allysa Warling, Erin Torres, Liv S. Clasen, Francois M. Lalonde, Joelle Sarlls, Daniel C. Alexander, Armin Raznahan
   Flux Congress (Sept. 2021).

2. ABCD-ReproNim: A free online course providing training for reproducible analyses of Adolescent Brain Cognitive Development (ABCD) Study data.
   Jessica E. Bartley, James D. Kent, **Elizabeth Levitis**, Dustin Moraczewski, Kristina M. Rapuano, Adam Richie-Halford, Taylor Salo, Jean-Baptiste Poline, Satrajit S. Ghosh, David N. Kennedy, Angela R.levitis2018deepqcposter Laird
   Flux Congress (Sept. 2021).

3. Characterizing multimodal phenotypes in sex chromosome aneuploidies.
   Elizabeth Levitis, Ethan T. Whitman, Siyuan Liu, Allysa Warling, Erin Torres, Liv S. Clasen, Francois M. Lalonde, Joelle Sarlls, Daniel C. Alexander, Armin Raznahan
   NIH GPP Research Symposium (Feb. 2021).

4. Differentiating epicenters of amyloid-beta spread in autosomal dominant and sporadic Alzheimer's disease.
   Elizabeth Levitis, Jacob Vogel, Thomas Funck, Gregory Kiar, Yasser Iturria-Medina, Alan C. Evans
   Organization for Human Brain Mapping (June 2020).

5. Application of an Epidemic Spreading Model to Characterize Amyloid Beta Accumulation in Autosomal Dominant Alzheimer's Disease Mutation Carriers
   Elizabeth Levitis, Jacob Vogel, Gregory Kiar, Thomas Funck, Yasser Iturria-Medina, Alan C. Evans
   Human Amyloid Imaging (Jan. 2020).

6. Structural Brain Connectivity Predicts Longitudinal Amyloid Beta Deposition in Autosomal Dominant Alzheimer's Disease Mutation Carriers
   Elizabeth Levitis, Jacob Vogel, Gregory Kiar, Thomas Funck, Yasser Iturria-Medina, Alan C. Evans
   Integrated Program in Neuroscience Retreat (Sept. 2019).

7. DeepQC: A RESTful API for Automatic MRI QC
   Elizabeth* **Levitis**, Andrew Doyle, Armin Taheri, Leigh MacIntyre, Samir Das, Alan C. Evans
   Organization for Human Brain Mapping (June 2018).

published code

For an up-to-date list of published code projects, please visit my GitHub profile at https://github.com/llevitis.