

elizabethlevitis

PhD Candidate



contact

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llevitis

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 Ac-
cumulation 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 charac-
terizing 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 struc-
tural MRI quality control. Duties include developing new features for the Infant
Brain Imaging Study project. For thesis work I have contributed to the develop-
ment of APPIAN, an automatic PET processing pipeline. My central thesis project
focused on determining how sporadic and autosomal dominant Alzheimer's dis-
ease 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 pre-
dict 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 – 2022	OHBM Student Postdoc SIG Treasurer-Elect	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 Hrcir, 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. 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.

2. Visualization in Python

(Dec. 2021), Brainhack Global DC, Workshop.

3. 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.

4. OHBM Annual BrainHack & TrainTrack

Open Science Special Interest Group (June 2020), Organization for Human Brain Mapping, Workshop.

5. Managing your Reproducible Experiments with Datalad and Boutiques

ReproNim (Feb. 2020), McGill University, Workshop.

6. 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>.