

HALLEE SHEARER

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BOSTON, MA

EDUCATION

UNIVERSITY OF BRITISH COLUMBIA

Vancouver, BC

Master of Science, Neuroscience

2021-2023

GPA: 89%; Thesis grade: 95%

- Supervisor: Dr. Tamara Vanderwal
- Thesis: Movie-fMRI as an acquisition state for functional connectivity-based precision psychiatry

UNIVERSITY OF BRITISH COLUMBIA

Vancouver, BC

Bachelor of Science, Behavioural Neuroscience (Co-operative Education Program)

2016-2021

GPA: 83%

FUNDING & AWARDS

Faculty of Medicine Graduate Award - UBC (\$300)	2023
Best Lightning Talk Award – UBC Psychiatry Research Day (\$500)	2023
Canadian Graduate Scholarship – Master’s - Canadian Institute of Health Research (\$17,500)	2022
UBC Graduate Student Travel Award (\$500)	2022
UBC Graduate Program in Neuroscience Travel Award (\$500)	2022
Faculty of Medicine Graduate Award - UBC (\$4,500)	2021
Faculty of Medicine Summer Student Research Award - UBC (\$2,800)	2021
Virtual Knowledge Exchange Grant - BC Children’s Hospital Research Institute (\$250)	2021
BioTalent Canada’s Student Work Placement Program (\$7,000)	2020
Dean’s Honour List - UBC	2016-2021

PUBLICATIONS

PEER-REVIEWED PUBLISHED MANUSCRIPTS

1. **Shearer, H**, Eilbott, J, Vila-Rodriguez, F, Noble, S, Vanderwal, T (2024) Comparing reliability of functional connectivity between movie and rest in psychiatric regions of interest. *Imaging Neuroscience*, *accepted*.
2. Frew, S, Samara, A, **Shearer, H**, Eilbott, J, & Vanderwal, T (2022) Getting the nod: Pediatric head motion in a transdiagnostic sample during movie-and resting-state fMRI. *PloS one*, 17(4), e0265112.

MANUSCRIPTS SUBMITTED AND UNDER REVIEW

1. **Shearer, H**, Vila-Rodriguez, F, Vanderwal, T (2023) Movie fMRI as an acquisition state for the identification of personalized rTMS targets.

MANUSCRIPTS IN PREPARATION

1. **Shearer, H** & Noble, S. BrainEffeX: a Shiny web app for exploring typical effect sizes for fMRI studies.
2. **Shearer, H** & Noble, S. Approaches for statistical comparison of test-retest reliability measures.
3. Ge, R, Gregory, L, Samara, A, **Shearer, H**, Humaira, A, MacMillan, E, Barlow, E, Frangou, S, Vanderwal, T, Vila-Rodriguez, F. Acute network-based functional connectivity perturbations induced during 1Hz TMS for Treatment Refractory Depression
4. Fischbach, A, **Shearer, H**, Satpute, A, Quigley, K, Theriault, J, Barrett, L, Noble, S. Comparative analysis of cerebrospinal fluid artifact removal methods in subcortical structures: implications for functional connectivity and task-based activation using 7-Tesla fMRI.

5. Fischbach, A, **Shearer, H**, Satpute, A, Quigley, K, Theriault, J, Barrett, L, Noble, S. Unmasking reliability: the impact of subject-specific masks on intra-subject reliability of subcortical connectivity in resting-state.

RESEARCH EXPERIENCE

NORTHEASTERN UNIVERSITY **Boston, MA**
Center for Cognitive and Brain Health, **2023-Present**
Neuroscience Precision Research & Idiographic Statistical Methods (NeuroPRISM) Laboratory

- Research Technician
- Supervisor: Dr. Stephanie Noble
- Leveraging large existing fMRI datasets to define typical study effects and developing an interactive web app (R Shiny) to explore the results
- Leading a project to develop recommendations for the statistical comparison of test-retest reliability estimates

UNIVERSITY OF BRITISH COLUMBIA **Vancouver, BC**
Department of Psychiatry, Naturalistic Neuroimaging Lab **2021-2023**

- Master's Student
- Supervisor: Dr. Tamara Vanderwal
- Compared test-retest reliability estimates of functional connectivity across movie-watching and resting-state for psychiatric applications

UNIVERSITY OF BRITISH COLUMBIA **Vancouver, BC**
Department of Psychiatry, Naturalistic Neuroimaging Lab **2020-2021**

- Research Assistant, Co-operative education position
- Supervisor: Dr. Tamara Vanderwal
- Investigated graph theory metrics of functional connectivity in childhood-onset OCD

UNIVERSITY OF BRITISH COLUMBIA **Vancouver, BC**
Department of Psychiatry, Non-Invasive Neurostimulation Therapies Lab **2019-2020**

- Research Assistant, Co-operative education position
- Supervisor: Dr. Fidel Vila-Rodriguez
- Administered Transcranial Magnetic Stimulation treatments in the context of clinical trials

UNIVERSITY OF BRITISH COLUMBIA **Vancouver, BC**
Department of Psychology, Evolutionary Social Cognition Lab **2018-2019**

- Research Assistant
- Supervisor: Dr. Mark Schaller
- Investigated the evolutionary basis of political conservatism

INVITED TALKS

University of Melbourne (virtual) - Systems Lab **2024**
 Movie-fMRI as an acquisition state for FC-based precision psychiatry

Northeastern University - Social Development and Wellbeing Lab **2024**
 Introduction to movie-fMRI

TEACHING EXPERIENCE

NORTHEASTERN UNIVERSITY **Boston, MA**
Department of Psychology **2024**

- PSYC7250: A data science toolkit for human neuroscience research

MENTORSHIP EXPERIENCE

Research Assistants:

Will Clarke, B.Sc., *Naturalistic Neuroimaging Lab Undergraduate Research Assistant, UBC* **2022-2023**
 Meghan Smith, B.Sc., *Naturalistic Neuroimaging Lab Undergraduate Research Assistant, UBC* **2022-2023**

High-school Students:

Samuel Joseph, *NeuroPRISM Summer Intern* **Summer 2024**
 Ariadne Weber-Madison, *Naturalistic Neuroimaging Lab Summer Intern* **Summer 2023**

WORKSHOPS & SUMMER SCHOOLS

Neurohackademy **2024**

A two-week summer school at the University of Washington in Seattle, focused on neuroimaging, machine learning, reproducible data science, computer programming, and open science.

Brainhack Boston: NEU **2024**

Organized and attended a full-day hackathon centered around developing a center-wide preprocessing pipeline.

Beyond Blobology: advances in statistical inference for neuroimaging **2023**

A one-day course at OHBM in Montreal focusing on current topics in neuroimaging statistics.

UBC fMRI Bootcamp **2022**

A one-week full-time introduction to fMRI preprocessing and analysis.

Neuromatch Academy **2021**

A three-week full-time computational neuroscience course.

SELECTED COURSES

Introduction to Data Science **2022**

Psychopathology of the Adult **2022**

Intermediate Statistics for Application **2021**

Systematic Program Design **2021**

Cognitive Neuroscience **2019**

AD-HOC REVIEW

Review profile: <https://www.webofscience.com/wos/author/record/KFS-0665-2024>

- Neuron, Human Brain Mapping, Developmental Cognitive Neuroscience, Scientific Reports

CONFERENCE PRESENTATIONS

Shearer H (2023) Movie-fMRI as an alternative to rest for FC-based precision psychiatric research. *UBC Psychiatry Research Day 2023*.

CONFERENCE POSTERS

Smith M, Samara A, Eilbott J, **Shearer H**, Vanderwal T, Bernhardt B. (2024) Hierarchical organization of intersubject correlations parallels functional gradients during naturalistic viewing. *OHBM 2024*.

Shearer H, Rosenblatt M, Ye J, Jiang R, Tejavibulya L, Liang Q, Dadashkarimi J, Westwater M, Cheng I, Rolison M, Peterson H, Adkinson B, Mehta S, Camp C, Curtiss J, Scheinost D, Noble S. (2024) BrainEffeX: A Shiny app to explore typical effect sizes in functional neuroimaging research. *Cognitive Neuroscience Society 2024*.

Fischbach A, **Shearer H**, Satpute A, Quigley K, Theriault J, Barrett L, Noble S. (2024) Assessing the impact of subject-specific masks on reliability of subcortical connectivity. *Cognitive Neuroscience Society* 2024.

Shearer H, Vila-Rodriguez F, Vanderwal T. (2023) Movie-fMRI as an alternative to rest for FC-based precision psychiatric research. *OHBM* 2023.

Samara A, Ge R, Gregory E, **Shearer H**, Vila-Rodriguez F, Vanderwal T. (2023) Acute FC changes during concurrent rTMS-fMRI for depression: a network-based approach. *OHBM* 2023.

Shearer H, Samara A, Eilbott J, Vila-Rodriguez F, Vanderwal T. (2022) On Location: Testing the use of movie-fMRI for individualized target localization for TMS. *OHBM* 2022.

Samara A, Eilbott J, **Shearer H**, Xu T, Vanderwal T. (2022) Gradients go to the movies: Macroscale cortical organization during naturalistic viewing. *OHBM* 2022.

Shearer H, Eilbott J, Steward SE, Vanderwal T. (2021) Graph theory analyses in childhood-onset OCD yield negative results. *OHBM* 2021.

Frew S, Samara A, **Shearer H**, Eilbott J, Vanderwal T. (2021) Getting the Nod: Characterizing pediatric head motion in movie- and resting-state fMRI. *OHBM* 2021.

Shearer H, Eilbott J, Steward SE, Vanderwal T. (2021) Graph theory analysis of fMRI data in pediatric OCD. *UBC Multidisciplinary Undergraduate Research Conference* 2021.

PROFESSIONAL MEMBERSHIPS

Cognitive Neuroscience Society Member	2024
Organization for Human Brain Mapping	2020 - 2024

LEADERSHIP & SERVICE

Screening Committee for Prospective Graduate Students and Postdocs (NeuroPRISM)	Volunteer	2024
Brainy Books	Founder and organizer (book club)	2019-Present
Vancouver Brain Bee	Exam Writing Committee	2023
UBC Intramural Volleyball League	Team lead and coordinator	2016-2023
UBC Neural Network	Volunteer Mentor	2022
Graduate Program in Neuroscience Curriculum Development Committee	Student Representative	2022-2023
BCCHRI Trainee Networking Committee	Event Planning Volunteer	2021-2023
Let's Talk Science Teacher Partnership Program	Volunteer Educator	2020-2022
BCCHRI Mini Med School	Volunteer Educator	2022
BC Brain Wellness Program	Event Volunteer	2019

SKILLS

Programming: R (*lme4*, *tidyverse*, *plotly*, *shiny*), Python (*Nilearn*, *Nipype*), MATLAB, Bash
Data analysis: Jupyter Notebooks, Git/GitHub, High-performance computing (*PBS*, *SLURM*, *parallel processing*)
Data processing: fMRIPrep, FSL, FreeSurfer, Docker, Singularity
Research management: RedCap, RAVE
Data Visualization: Matplotlib, ggplot2, Graphpad Prism, Biorender, Tableau
Systems: Linux, MAC OS, Windows
Software: RStudio, Visual Studio Code, Quarto, FSLEyes, Connectome Workbench, Psychopy