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. Noble, S, **Shearer, H**, Rosenblatt, M, Ye, J, Jiang, R, Tejavibulya, L, Liang, Q, Dadashkarimi, J, Westwater, M, Cheng, I, Fischbach, A, Humphries, A, Rolison, M, Peterson, H, Atkinson, B, Mehta, S, Camp, C, Calhoun, V, Constable, T, Nichols, T, Curtiss, J, Scheinost, D. What effect sizes can I expect when conducting an fMRI study? Meta-analytic guidelines from large, publicly available datasets.

4. 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
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, Stewart 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