HALLEE SHEARER
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EDUCATION

Master of Science, Neuroscience 09/2021 – 09/2023
University of British Columbia – Vancouver, BC
Thesis title: Investigating the use of movie fMRI for precision psychiatry
Thesis grade: 95%
Supervisor: Dr. Tamara Vanderwal

Bachelor of Science, Behavioural Neuroscience 09/2016 – 04/2021
University of British Columbia – Vancouver, BC

RESEARCH EXPERIENCE

Research Technician – Neuroscience Precision Research & Idiographic Statistical Methods (NeuroPRISM) Lab 12/2023 – Present

- Leveraging large existing fMRI datasets to define typical study effects and develop an effect size web app resource
- Developing nonparametric statistical methods for comparing test-retest reliability measures across conditions
- Supervisor: Dr. Stephanie Noble, Northeastern University

Master's Student – Naturalistic Neuroimaging Lab 09/2021 – 09/2023

- Compared reliability measures of functional connectivity across acquisition states
- Supervisor: Dr. Tamara Vanderwal, the University of British Columbia (UBC)

Research Assistant – Naturalistic Neuroimaging Lab 05/2020 – 08/2021

- Conducted a literature review and performed graph theory analysis of pediatric OCD fMRI data
- Supervisor: Dr. Tamara Vanderwal, UBC

Research Assistant – Non-Invasive Neurostimulation Therapies Lab 05/2019 – 04/2020

- Administered Transcranial Magnetic Stimulation treatments in the context of clinical trials, collected vital signs data during Electroconvulsive Therapy treatments
- Supervisor: Dr. Fidel Vila-Rodriguez, UBC

Research Assistant – Evolutionary Psychology 09/2018 – 04/2019

- Investigated the evolutionary basis of political conservatism with rigorous hypothesis building techniques, reviewed literature about cognitive biases, implemented mind-mapping techniques to create summaries
- Supervisor: Dr. Mark Schaller, UBC

PUBLICATIONS

1. 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.

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

3. **Shearer, H,** Eilbott, J, Vila-Rodriguez, F, Noble, S, Vanderwal, T (2023) Comparing reliability of functional connectivity between movie and rest in psychiatric regions of interest. (Under revision)

AWARDS AND FUNDING

Faculty of Medicine Graduate Award (UBC, *$300*) 09/2023

Best Lightning Talk Award – UBC Psychiatry Research Day (*$500*) 06/2023

Canadian Graduate Scholarship – Master's (*$17,500*) 05/2022
- Canadian Institute of Health Research

UBC Graduate Student Travel Award (*$500*) 06/2022

UBC Graduate Program in Neuroscience Travel Award (*$500*) 06/2022

Faculty of Medicine Graduate Award (UBC, *$4,500*) 09/2021

Faculty of Medicine Summer Student Research Award (UBC, *$2,800*)

Virtual Knowledge Exchange Grant (*$250*) 06/2021
- BC Children's Hospital Research Institute

BioTalent Canada's Student Work Placement Program (*$7,000*) 05/2020

Dean's Honour List 2016 - 2021

INVITED TALKS

1. Shearer H. (2024). Movie-fMRI as an acquisition state for FC-based precision psychiatry. *Systems Lab, University of Melbourne*.

POSTER PRESENTATIONS

1. **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.*
2. 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.*
3. **Shearer H,** Vila-Rodriguez F, Vanderwal T. (2023) Movie-fMRI as an alternative to rest for FC-based precision psychiatric research. *OHBM 2023.*
4. 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*.
5. **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*.
6. Samara A, Eilbott J, **Shearer H**, Xu T, Vanderwal T. (2022) Gradients go to the movies: Macroscale cortical organization during naturalistic viewing. *OHBM 2022*.
7. **Shearer H**, Eilbott J, Steward SE, Vanderwal T. (2021) Graph theory analyses in childhood-onset OCD yield negative results. *OHBM 2021*.
8. 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*.
9. **Shearer H**, Eilbott J, Stewart SE, Vanderwal T. (2021) Graph theory analysis of fMRI data in pediatric OCD. *UBC Multidisciplinary Undergraduate Research Conference 2021*.

CONFERENCE PRESENTATIONS

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

PEER REVIEW

Human Brain Mapping, Neuron, Developmental Cognitive Neuroscience

SKILLS

- Proficient in Python, R, Prism, and Microsoft Excel
- Competent in MATLAB and Bash
- Competent preprocessing and analyzing fMRI data with FSL and Connectome Workbench

- Project development in REDcap and RAVE
- Coding and running experiments in Psychopy
- Collecting fMRI data with vulnerable subject
- Writing research and ethics proposals
- Conversational French

WORKSHOPS AND COURSES

Neuromatch Academy 06/2021
Three-week full-time Computational Neuroscience course
Combined statistics, math, and computer science to create meaningful models of the brain

UBC fMRI Bootcamp 05/2022
One-week full-time introduction to fMRI preprocessing and analysis
Learned to obtain, rename, preprocess, and analyze fMRI data with BIDS, fMRIPrep, Bash, and FSL

OHBM Educational Course - Beyond blobology: advances in statistical inference for neuroimaging 06/2023
One-day course at OHBM in Montreal, Canada
Learned about limitations of current methods of inferential statistics for fMRI, as well as recent advancements in the field

A data science toolkit for human neuroscience research (Auditor) 01/2024 – 04/2024
Semester-long course at Northeastern University by Dr. Stephanie Noble
Learned machine learning with Python, fMRI preprocessing and analysis

Brainhack Boston (Northeastern University) 03/2024
Assisted in the planning and execution of a Brainhack event focused on developing an institution-wide preprocessing pipeline.

PROFESSIONAL MEMBERSHIPS

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

COMMUNITY AND VOLUNTEER ACTIVITIES

Founder and organizer of neuroscience book club 2019 – Present
Mentorship of high school student – Naturalistic Neuroimaging Lab 05/2023 – 09/2023
Team lead and coordinator – Intramural Volleyball League, UBC 09/2016 – 05/2023
Exam Writing Committee – Vancouver Brain Bee 03/2023

Fundraising Volunteer – Make-A-Wish Foundation	12/2022
Volunteer Mentor – UBC Neural Network	11/2022 - Present
Student Representative – UBC Graduate Program in Neuroscience Curriculum Development Committee	11/2022 - Present
Event Planning Volunteer – BCCHRI Trainee Networking Committee, BC Children's Hospital	10/2021 - Present
Volunteer Educator – Let's Talk Science Teacher Partnership Program	01/2020 – 06/2022
Mini Med School Volunteer – BC Children's Hospital	03/2022 – 04/2022
Event Volunteer – BC Brain Wellness Program	10/2019