

# Elvisha Dhamala

Department of Psychology, Yale University

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## ACADEMIC APPOINTMENTS

2021- **Postdoctoral Associate, Yale University**  
Advisor: Avram Holmes

## EDUCATION

2021 **Ph.D. (Neuroscience), Weill Cornell Medicine, New York, USA**  
*Multimodal Connectome Mapping of Sex Differences and Cognitive Abilities: A Machine Learning Approach*  
Advisor: Amy Kuceyeski

2017 **B.Sc. (Neuroscience), McGill University, Montréal, Canada**  
Neurophysiology/Neural Computation Stream

## HONOURS AND AWARDS

2021-2023 **Kavli Postdoctoral Fellowship for Academic Diversity, Yale University**  
Amount awarded: \$130,000 USD

2020 **Graduate Student Award, Cognitive Neuroscience Society**  
Amount awarded: \$100 USD

## PEER-REVIEWED PUBLICATIONS

\* denotes equal contributions. \*\* denotes trainee author.

1. **Dhamala E**, Jamison KW, Jaywant A, Kuceyeski A. 2022. Shared functional connections within and between cortical networks predict individual cognitive abilities in males and females. *Human brain mapping*, 43(3), pp.1087-1102. PMID: 34811849 | DOI: 10.1002/hbm.25709
2. **Dhamala E**, Jamison KW, Jaywant A, \*\*Dennis S, Kuceyeski A. 2021. Distinct functional and structural connections predict crystallised and fluid cognition in healthy adults. *Human brain mapping*, 42(10), pp.3102-3118. PMID: 33830577 | DOI: 10.1002/hbm.25420
3. Cha J, Speaker S, Hu B, Altinay M, Koirala P, Karne H, Spielberg J, Kuceyeski A, **Dhamala E**, Anand A. 2021. Neuroimaging correlates of emotional response-inhibition discriminate between young depressed adults with and without sub-threshold bipolar symptoms (Emotional Response-inhibition in Young Depressed Adults). *Journal of affective disorders*, 281, pp.303-311. PMID: 33341013 | DOI: 10.1016/j.jad.2020.12.037
4. **Dhamala E**, Jamison KW, Sabuncu MR, Kuceyeski A. 2020. Sex classification using long-range temporal dependence of resting-state functional MRI time series. *Human*

*brain mapping*, 41(13), pp.3567-3579.

PMID: 32627300 | DOI: 10.1002/hbm.25030

5. **Dhamala E**, Abdelkefi I, Nguyen M, Hennessy TJ, Nadeau H, Near J. 2019. Validation of in vivo MRS measures of metabolite concentrations in the human brain. *NMR in Biomedicine*, 32(3), p.e4058. PMID: 30663818 | DOI: 10.1002/nbm.4058  
*Top 10% most downloaded papers in NMR in Biomedicine 2018-2019.*

## PRE-PRINTS AND MANUSCRIPTS IN PREPARATION

\* denotes equal contributions. \*\* denotes mentee co-author.

1. Ooi LQR, Chen J, Shaoshi Z, Kong R, Tam A, Li J, **Dhamala E**, Zhou JH, Holmes AJ, Yeo BTT. (Submitted). Comparison of individualized behavioral predictions across anatomical, diffusion and functional connectivity MRI. *BioRxiv preprint*. DOI: 10.1101/2022.03.08.483564
2. **Dhamala E**, Ooi LQR, Chen J, Kong R, Anderson KM, Yeo BTT, Holmes AJ. (Submitted). Intracranial volume correction differentially biases behavioral predictions across neuroanatomical features and populations. *BioRxiv preprint*. DOI: 10.1101/2022.03.15.483970
3. \*Ricard JA, \*Parker TC, **Dhamala E**, Kwasa J, Allsop AS, Holmes AJ. (In preparation). Addressing phenotypic bias, racism, and exclusionary practices in the acquisition and analyses of neuroimaging data.
4. \*\*Bukhari H, Su C, **Dhamala E**, Gu Z, Jamison K, Fan Z, Kuceyeski A. (In preparation). Graph-matching based metrics of functional connectome distance vary with age, sex, and relatedness.
5. **Dhamala E**, BTT Yeo, Holmes AJ. (In preparation). When one size doesn't fit all: dealing with model specificity in psychiatric neuroimaging.

## TEXTBOOK CHAPTERS

\* denotes equal contributions. \*\* denotes mentee co-author.

1. Thompson, J.W., Kosofsky, B., **Dhamala, E.** and Duggan, R., 2020. Electrophysiology monitoring. *Biomarkers for Traumatic Brain Injury*, pp.113-142. ISBN: 9780128163467

## PRESENTATIONS: POSTERS, TALKS, SYMPOSIA

\* denotes equal contributions. \*\* denotes mentee co-author.

1. **Dhamala E**, Ooi LQR, Chen J, Kong R, Anderson KM, Yeo BTT, Holmes AJ. (Accepted). Intracranial volume correction differentially biases brain-behavior predictions across populations. Poster. *Organization for Human Brain Mapping*.
2. **Dhamala E**, Holmes AJ, Chen J, Li J, Keller A. (Accepted). Machine learning in neuroimaging: from application to interpretation. Symposium. *Organization for Human Brain Mapping*.

3. Wu E, Olafson E, **Dhamala E**, Pritschet L, Santander T, Jacobs E, Kuceyeski A. (Accepted). Estradiol and progesterone relate to brain state dynamics. Poster. *Organization for Human Brain Mapping*.
4. **Bukhari H**, Su C, **Dhamala E**, Gu Z, Jamison K, Fan Z, Kuceyeski A. (Accepted). A novel graph matching-based metric of the human connectome varies with age and sex. Poster. *Organization for Human Brain Mapping*.
5. **Dhamala E**, Ooi LQR, Chen J, Kong R, Anderson KM, Yeo BTT, Holmes AJ. (Accepted). Intracranial volume correction differentially biases behavioral predictions across neuroanatomical features and populations. Poster. *Society for Biological Psychiatry*.
6. Holmes AJ, Uddin LQ, **Dhamala E**, Bzdok D, Yip S. (Accepted). The future of psychiatry: promises and pitfalls in the use of big data. Symposium. *Society for Biological Psychiatry*.
7. **Dhamala E**, Kong R, Anderson KM, Ooi LQR, Chen J, Yeo BTT, Holmes AJ. Anatomical properties of individual-specific areal-level parcellations predict cognition and behaviour. Poster. *Society for Neuroscience*; November 2021; Virtual due to COVID-19.
8. **Dhamala E**. Modelling and Analysis - Connectivity. Poster Session Moderator. *Organization for Human Brain Mapping*; June 2021; Virtual due to COVID-19.
9. **Dhamala E**. Higher Cognitive Function. Poster Session Moderator. *Organization for Human Brain Mapping*; June 2021; Virtual due to COVID-19.
10. **Dhamala E**, Jamison KW, Jaywant, A, Kuceyeski A. Shared functional connectivity features predict individual cognitive abilities in males and females. Poster. *Organization for Human Brain Mapping*; June 2021; Virtual due to COVID-19. *Featured in the Modelling and Analysis - Multivariate Approaches session*.
11. **Wu E**, **Dhamala E**, Pritschet L, Santander T, Jacobs E, Kuceyeski A. Increased sex hormones are associated with increased segregation of functional connectivity networks. Poster. *Organization for Human Brain Mapping*; June 2021; Virtual due to COVID-19. *Featured in the Social Neuroscience, Emotion, and Motivation session*.
12. **Cai C**, **Dhamala E**, Pritschet L, Santander T, Jacobs E, Kuceyeski A. Fluctuations in estradiol and progesterone are not related to high amplitude co-fluctuations in fMRI. Poster. *Organization for Human Brain Mapping*; June 2021; Virtual due to COVID-19.
13. **Dhamala E**, Jamison KW, Jaywant A, Kuceyeski A. Shared functional connectivity features underlie cognitive abilities in males and females. Oral Presentation. *Weill Cornell Medicine, Vincent du Vigneaud Research Symposium*; April 2021; Virtual due to COVID-19.
14. **Dhamala E**, Jamison KW, **Dennis SM**, Patel R, Chakravarty MM, Kuceyeski A. Hybrid structure-function connectome predicts individual cognitive abilities. Oral power pitch. *International Society of Magnetic Resonance in Medicine*; August 2020; Virtual due to COVID-19.

15. **Dhamala E** and Khosla M. Machine Learning in Neuroimaging. Breakout session leaders: Women in Machine Learning Un-Workshop. *International Conference on Machine Learning*. July 2020; Virtual due to COVID-19.
16. **Dhamala E**, Jamison KW, \*\*Dennis SM, Patel R, Chakravarty MM, Kuceyeski A. Integration of structural and functional connectomes to predict individual cognitive abilities. Poster. *Organization for Human Brain Mapping*; June 2020; Virtual due to COVID-19.
17. Simon A, Jamison KW, Tozlu C, **Dhamala E**, Gauthier S, Kuceyeski A. Temporal memory of resting-state fMRI time series activations are able to classify multiple sclerosis. Poster. *Organization for Human Brain Mapping*; June 2020; Virtual due to COVID-19.
18. **Dhamala E**, Jamison KW, Kuceyeski A. Hybrid structure-function connectome predicts sex. Poster. *Organization for the Study of Sex Differences*; Conference cancelled due to COVID-19.
19. **Dhamala E**, Jamison KW, \*\*Dennis SM, Patel R, Chakravarty MM, Kuceyeski A. Hybrid-structure-function connectome predicts crystallised and fluid cognition. Poster. *Cognitive Neuroscience Society*; May 2020; Virtual due to COVID-19.
20. **Dhamala E**, Jamison KW, \*\*Dennis SM, Kuceyeski A. Prediction of individual cognitive ability using resting-state functional connectivity. Poster. *Society for Neuroscience*; October 2019; Chicago, USA.
21. **Dhamala E**, Jamison KW, Kuceyeski A. Sex differences in long-term temporal dependence of resting state fMRI time series. Poster. *Organization for Human Brain Mapping*; June 2019; Rome, Italy.
22. Duggan RC, **Dhamala E**, Kosofsky BE. Heart rate variability during exercise is a biomarker distinguishing between subjects with post-concussive syndrome following mild traumatic brain injury and healthy volunteers. Poster. *Society for Neuroscience*; November 2018; San Diego, USA.
23. Kassiopoulou M, Ghosh A, **Dhamala E**, Boudrias MH, Mitsis G. Cardiac noise removal from BOLD fMRI based on a dynamic linear model. Poster. *Organization for Human Brain Mapping*; June 2017; Vancouver, Canada.

## INVITED RESEARCH TALKS

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|------|--|
| 2021 | Yale Imaging and Psychopharmacology Lab<br>Yale University, New Haven, USA                                 |
| 2021 | Cognitive Neuroscience Seminar<br>Yale University, New Haven, USA  |
| 2021 | Brain Health Imaging Institute Seminar Series<br>Weill Cornell Medicine, New York, USA                     |
| 2020 | Centre d'Imagerie Cérébrale Lecture Series<br>Douglas Mental Health University Institute, Montréal, Canada |
| 2020 | Cognitive Neuroscience Seminar<br>Yale University, New Haven, USA  |

- 2020 Rajah Lab  
Douglas Mental Health University Institute, Montréal, Canada
- 2020 Jacobs Lab  
University of California Santa Barbara, Santa Barbara, USA
- 2020 Early Career BIPOC Scholars Neuropsychology Lecture Series  
Ohio State University, Columbus, USA
- 2020 Frontiers in Neuropsychiatry Seminar  
Weill Cornell Medicine, New York, USA
- 2020 Progress in Neuroscience Seminar  
Weill Cornell Medicine, New York, USA
- 2019 Matteson Lab  
Cornell University, Ithaca, USA
- 2019 Psychiatric and Developmental Imaging Lab  
University of Pennsylvania, Philadelphia, USA

## INVITED PANELS

- 2021 Building Allyship Series:  
Understanding and Combating Insidious Forms of Anti-Asian Racism  
Cornell University, Ithaca, USA
- 2021 Open Science Room Emergent Sessions:  
Concerns and Challenges with the Different Meeting Formats  
Organization for Human Brain Mapping Annual Conference, Virtual
- 2021 BrainHack:  
Data Visualisation and Machine Learning  
Organization for Human Brain Mapping Annual Conference, Virtual
- 2020 Building Allyship Series:  
Dangers of Performative Allyship – Understanding Intent versus Impact  
Cornell University, Ithaca, USA

## TEACHING

- 2020-2021 **Instructor, HD 2200 Human Brain and Mind** (Enrolment: ~15 per semester)  
Spring 2020: Auburn Correctional Facility  
Fall 2021: Cayuga Correctional Facility  
Spring 2021: Five Points Correctional Facility  
Cornell University - Cornell Prison Education Program

## MENTORING

- 2019-2021 **Cornell University**  
Hussain Bukhari (2021, graduate rotation student)  
Catherine Cai (2020-2021, undergraduate research mentor)  
Elaine Wu (2020-2021, undergraduate research mentor)  
Saanvi Somani (2020-2021, high school capstone project mentor)

Jason Chen (2020, undergraduate research mentor)  
Sarah Dennis (2019, undergraduate research mentor)

2015-2017 **McGill University**

Afuad Hossain (2017, undergraduate research mentor)  
Bennet Desormeau (2016-2017, undergraduate research mentor)  
Sharif Ahmed (2017, undergraduate research mentor)  
Natalie Sun (2017, undergraduate research mentor)

## **AD HOC REVIEWER**

Developmental Cognitive Neuroscience  
Frontiers in Neuroscience  
Heliyon  
IEEE Access  
Neuroimage  
PLOS ONE  
Translational Psychiatry

## **PROFESSIONAL SERVICE**

2021-2024 Program Committee: Ad Hoc Member  
Organization for Human Brain Mapping  
2020-2021 Technology Task Force: Ad Hoc Member  
Organization for Human Brain Mapping  
2020-2021 Program Committee: Student and Postdoc Liaison  
Organization for Human Brain Mapping  
2020-2021 Sustainability and Environmental Action Group: Social Coordinator  
Organization for Human Brain Mapping  
2020 Distance Based Education Taskforce: Student and Postdoc Liaison  
Organization for Human Brain Mapping  
2019-2021 Student and Postdoc Group: Social Coordinator  
Organization for Human Brain Mapping

## **INSTITUTIONAL SERVICE**

2020-2021 Machine Learning in Medicine Seminar and Symposium: Organiser  
Weill Cornell Medicine  
2020-2021 Graduate and Professional Students Diversity Council: Member  
Cornell University  
2020-2021 Graduate and Professional Students International: Co-President  
Cornell University  
2020 CoCo Lab Professional Development Series: Organiser, Facilitator  
Weill Cornell Medicine  
2020 Brainhack NY: Organiser  
Weill Cornell Medicine

- 2019-2020 Multicultural Academic Council: Mentor  
Cornell University
- 2018-2019 Neuroscience Boot Camp: Organiser, Lecturer  
Weill Cornell Medicine
- 2017-2018 Vincent du Vigneaud Research Symposium: Outreach Coordinator  
Weill Cornell Medicine
- 2015-2017 Neuroscience Undergraduates of McGill: Vice President Internal  
McGill University
- 2015-2016 Kinesiology Games: Head of Sponsorship  
McGill University

## **SCIENCE COMMUNICATION AND OUTREACH ACTIVITIES**

- 2022 Scientific Judge  
New Haven Science Fair
- 2022 Brain Education Day Leader  
Yale University
- 2018- Scientist Mentor  
Skype A Scientist
- 2018 Student Space Experiments Program: Mentor  
Cornell Cooperative Extension, Cornell University

## **PROFESSIONAL DEVELOPMENT AND TRAININGS**

- 2022 Postdoc Series: Chalk Talk  
Kavli Institute for Neuroscience, Yale University
- 2022 Creating Connections: An Introduction to the Alda Method  
Kavli Foundation
- 2022 Crafting a Compelling Diversity Statement  
Yale University
- 2022 Grant Writing  
Yale University
- 2022 Mental Health First Aid Certification  
National Council for Mental Wellbeing
- 2021 Fundamentals of Scientific Writing  
Yale University
- 2021 Colman Inclusive Leadership Program  
Cornell University
- 2020-2021 NextGen Professor's Program  
Cornell University
- 2020 Integrating Sex and Gender to Improve Human Health  
National Institutes of Health: Office of Research on Women's Health
- 2020 Writing in the Sciences  
Coursera
- 2020 Teaching and Learning in the Diverse Classroom

2019 Cornell University  
Art of Scientific Writing  
Weill Cornell Medicine

### **PROFESSIONAL MEMBERSHIPS**

Cognitive Neuroscience Society  
Organization for Human Brain Mapping  
Society for Neuroscience

### **PRE-DOCTORAL TRAINING**

2018 Weill Cornell Medicine, New York, USA  
Rotation Student (Advisor: Barry Kosofsky)

2017 Weill Cornell Medicine, New York, USA  
Rotation Student (Advisor: Olivier Elemento)

2017 Douglas Mental Health University Institute, Montréal, Canada  
Research Assistant (Advisor: Jamie Near)

2016-2017 McGill University Faculty of Medicine, Montréal, Canada  
Research Assistant (Advisor: Marie-Hélène Boudrias)

2015-2016 McGill University Faculty of Science, Montréal, Canada  
Research Assistant (Advisor: Maria Pompeiano)

2014-2015 McGill University Faculty of Science, Montréal, Canada  
Laboratory Assistant (Advisor: Rudiger Krahe)