

EMILY J. LEVIN

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EDUCATION

B.A. Boston University, Boston, MA May 2014
Neuroscience, Religion
Magna cum laude

HONORS/AWARDS

Silvio O. Conte Center for Basic and Translational Mental Health Research Fall 2013
Funding for Research Internship in Neurotherapeutics
MGH/HST Martinos Center for Biomedical Imaging

UROP Student Research Award Summer 2013
Funding for attention and meditation research
Boston University

UROP Poster Symposium October 2012
2nd Place Poster, Boston University

UROP Student Research Award Summer 2012
Jerusalem pilgrimage research Summer 2011
Boston University

The Alice M. Brennan Humanities Award May 2012
Boston University

College of Arts and Sciences Research Scholar Summer 2011
Boston University

College of Arts and Sciences Honors Program 2009-2010
Boston University

University Scholarship 2009-2014
Boston University

RESEARCH EXPERIENCE

Laboratory Manager

2014-2016

Attention and Perception Neuroimaging Laboratory, Boston University
Boston University

Advisor: David C. Somers, Ph.D.

Topic: Attention networks; functional imaging

Managed laboratory administration and conducted three research projects related to attention networks using functional magnetic resonance imaging (fMRI). The first research project investigated differences in attention networks between meditators and non-meditators. The second and third projects focused on attentional modulation in the cerebellum. Laboratory duties included MRI acquisition and data analysis using FreeSurfer and MATLAB. Administrative duties included overseeing human subject and IRB documentation, assisting with grant writing and renewal, and building and maintaining laboratory website. Partially funded by Boston University Undergraduate Research Opportunities Program (Summer 2013).

Research Intern

2013-2014

Division of Neurotherapeutics
MGH/HST Martinos Center for Biomedical Imaging

Advisors: Darin Dougherty, M.D. and Thilo Deckersbach, Ph.D.

Topic: Neurotherapeutics research

Assisted with fMRI scanning, data analysis (pre-processing and first-level analysis), and conducted literature reviews on mind-based stress reduction (MBSR) and functional imaging. Funded by Silvio O. Conte Center for Basic and Translational Mental Health Research.

Research Assistant

2011-2012

Department of Religion
Boston University

Advisor: Michael Zank, Ph.D.

Topic: Jerusalem pilgrimage

Conducted research on the subject of Jerusalem pilgrimage by examining authentic accounts of Jewish, Christian, and Muslim pilgrimages. Read and analyzed 36 primary accounts from 333 C.E. to the late 20th century. Investigation resulted in a pilgrimage database that allows accounts to be easily accessed and searched by students and researchers alike. Funded by Boston University Undergraduate Research Opportunities Program.

Research Assistant

2011

Center for Healthy Minds
University of Wisconsin-Madison

Advisor: Richard Davidson, Ph.D. (mentored by Martina Ly)

Topic: Meditation research

Assisted in manual white matter edits of MRI scans of naïve meditators and expert meditators using FreeSurfer.

Research Assistant

2010

Center for Memory and Brain
Boston University

Advisor: Howard Eichenbaum Ph.D.

Topic: Familiarity versus recollection memory

Tested the hypothesis that recollection memory is carried out in the hippocampus whereas familiarity memory recruits parahippocampal regions of the brain. Research involved training rats to differentiate between new odors and odors that had already been presented.

Research Assistant

2008

Department of Anatomy
University of Wisconsin-Madison

Advisor: Clive Svendsen Ph.D.

Topic: Neuroanatomical research

Prepared and stained slides examining tyrosine hydroxylase in rodents with an animal model of Huntington's Disease (HD) to see if there were fewer dopaminergic neurons in the substantia nigra of HD mice compared with controls.

Research Assistant

2007

Department of Visual Sciences
University of Wisconsin-Madison

Advisor: Leonard Levin M.D., Ph.D.

Topic: Ophthalmologic research

Cleaned and managed laboratory space while learning basic research techniques such as running polymerase chain reactions, cell culture, and fluorescent microscopy.

PUBLICATIONS

Peer-reviewed Research

Brissenden, J.A*, **Levin, E.J***, Osher, D.E., Halko, M.A., Somers, D.C. (2016). Functional Evidence for a Cerebellar Node of the Dorsal Attention Network, *Journal of Neuroscience*, 36(22):6083-6096.

*Equal authorship

Devaney K.J., **Levin E.J.**, Michalka S.W., Rosen M.L., Somers D.C. (2015). fMRI-based Functional Localization of the Ventral Attention Network in Individual Subjects. *Journal of vision*, 15(12), 435-435.

Brissenden, J.A., **Levin E.J.**, Osher, D.E., Rosen, M.L., Halko, M.A., Somers, D.C. (2015). Cerebellar Contributions to Visual Attention and Visual Working Memory Revealed by Functional MRI and Intrinsic Functional Connectivity. *Journal of vision*, 15(12), 232-232.

Lieven, C.J., Thurber, K.A., **Levin, E.J.**, Levin, L.A. (2012). Ordering of neuronal apoptosis signaling: a superoxide burst precedes mitochondrial cytochrome c release in a growth factor deprivation model. *Apoptosis*. 17(6), 591-599.

Manuscripts in Preparation

Devaney K.J., **Levin E.J.**, Michalka S.W., Rosen M.L., Somers D.C. Localization of the Temporo-Parietal Junction of the Ventral Attention Network Using Functional MRI, *in prep*.

PRESENTATIONS

Levin E.J., Noyce, A.L., Michalka, S.W., Brissenden, J.A., Halko, M.A., Somers, D.C. (2015, October) Auditory-biased and visual-biased attentional subdivisions in the cerebellum revealed by functional magnetic resonance imaging. Poster presented at the 45th Society for Neuroscience Annual Meeting, Chicago, IL.

Levin, E.J., Brissenden, J.A., Devaney, K.J., Rosen, M.L., Osher, D.E., Halko, M.A., Somers, D.C. (2015, March). Attentional Modulation in the Cerebellum Revealed by a Multiple Object Tracking Task and Cerebro-Cerebellar Functional Connectivity. Poster presented at the 22nd annual Cognitive Neuroscience Society Meeting, San Francisco CA.

Brissenden, J.A., **Levin, E.J.**, Devaney, K.J., Osher, D.E., Halko, M.A., Somers, D.C. (2015, March). Cerebro-Cerebellar Functional Connectivity Predicts Cerebellar Activation During Visual Working Memory Task Performance. Poster presented at the 22nd annual Cognitive Neuroscience Society Meeting, San Francisco CA.

Devaney, K.J., **Levin, E.J.**, Michalka, S.W., Rosen, M.L., Somers, D.C. (2014, October/November). Experienced Meditators Display Altered Neural Activation in Cortical Attention Networks. Poster Presentation, Mind and Life Institute International Symposium for Contemplative Studies.

Devaney, K.J., **Levin, E.J.**, Rosen, M.L., Michalka, S.W., Kong, L., Somers, D.C. (2014, April) The Temporo-Parietal Junction Node of the Ventral Attention Network is Bilateral and Subdivided into Anterior and Posterior Patches. Poster presented at the 21st annual Cognitive Neuroscience Society meeting, Boston, MA.

Levin, E.J., Devaney, K.J., Somers, D.C. (2013, October) Investigating Attentional Networks in Naïve versus Expert Meditators Using Functional Imaging. Poster presented at the 16th Annual Undergraduate Research Symposium, Boston University.

Levin, E.J., Zank, M. (2012, October) Jerusalem Pilgrimage: Indexing Authentic Abrahamic Religion Pilgrimage Accounts. Poster presented at the 15th Annual Undergraduate Research Symposium, Boston University. **2nd place out of 220.**

PROFESSIONAL MEMBERSHIPS

Cognitive Neuroscience Society

Society for Neuroscience

SKILLS

Computational

Operating systems: UNIX, Linux

Software/applications: FreeSurfer, SPM, Adobe Creative Suite

Programming languages: MATLAB, shell scripting in bash and C shell

Laboratory

Functional magnetic resonance imaging (fMRI)

Human behavior and psychophysics

Laboratory administration

Animal training and husbandry

Immunohistochemistry

Cryosectioning