

Elizabeth H. Beam

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EDUCATION

- 2015 – **Stanford University** • Palo Alto, CA
Medical Scientist Training Program (MSTP) Candidate
Doctor of Medicine (MD) • Neurosciences, Doctor of Philosophy (PhD) • GPA: 4.10
Dissertation: “Engineering a data-driven ontology of human brain function”
- 2009 – 2013 **Duke University** • Durham, NC
Neuroscience, Bachelor of Science (BS) • English, Bachelor of Arts (BA) • GPA: 3.93
Summa Cum Laude • Graduation with Distinction in Neuroscience & English

RESEARCH POSITIONS

- 9/15 – **Stanford School of Medicine** • Psychiatry & Behavioral Sciences
PhD Student in the Labs of Professors Amit Etkin, MD, PhD & Russ Poldrack, PhD
Leading a thesis project that seeks to engineer a data-driven ontology of human brain function through machine learning and natural language processing of the neuroimaging literature. As a medical student, initiated a multisite MRI analysis that identified subtypes of post-traumatic stress disorder through unsupervised learning.
- 11/15 – 5/17 **VA Palo Alto Health Care System** • Primary Care & Behavioral Health
Quality Improvement Research with Dr. Shaili Jain, MD
Designed and performed a longitudinal quantitative assessment of a novel protocol for phone-based management of antidepressants prescribed in primary care, finding significant improvement in procedural outcomes.
- 6/13 – 7/15 **Massachusetts General Hospital** • Psychiatry
Harvard University • Psychology • Center for Brain Science
Full-Time Research in the Lab of Professor Randy Buckner, PhD
Coordinated a large-scale study of behavioral, neural, and genetic dimensions of anxiety. Investigated frontoparietal network and executive dysfunction in young adults at risk for depression. Performed MRI acquisition and quality control, assessed patients for psychopathology, designed online surveys, and built automated scoring pipelines.
- 5/10 – 5/13 **Duke University** • Center for Cognitive Neuroscience
Neuroscience Thesis Research in the Lab of Professor Scott Huettel, PhD
Developed original applications of network text analysis to map interrelations between psychological concepts and neuroanatomical structures throughout the literature of cognitive neuroimaging, facilitating data-driven hypothesis generation.
- 6/12 – 8/12 **Harvard Medical School** • Neurobiology
Summer Fellowship in the Lab of Professor Edward Kravitz, PhD
Awarded a stipend by the Angier B. Duke Research Fund to apply intersectional neurogenetic techniques in *Drosophila*, characterizing changes in aggression due to inactivation of select dopamine neurons.

HONORS & AWARDS

Research Funding

- 2020 – Ruth L. Kirschstein National Research Service Award (F30), National Institutes of Health
2016 – 2017 Medical Scholars Research Fellowship, Stanford School of Medicine
2016 Pre-Doctoral Research Stipend (T32), Lab of Alan Schatzberg, Stanford University
2012 Angier B. Duke Research Fund Stipend, Duke University

Graduate Honors & Awards

- 2017 – Medical Scientist Training Program (MSTP), National Institutes of Health
2017 Leah J. Dickstein Medical Student Award, Association of Women Psychiatrists

Undergraduate Honors & Awards

- 2009 – 2013 Angier B. Duke Full-Tuition Memorial Scholarship, Duke University
2013 Graduation with Distinction in Neuroscience (top honor), Duke University
2013 Graduation with Highest Distinction in English, Duke University
2013 Summa Cum Laude, Duke University
2013 Schutt Senior Award for Outstanding Contributions in Creative Writing, Duke University
2012, '13 Terry Welby Tyler, Jr. Award for Poetry, Duke University
2012 Rhodes Scholarship Finalist
2012 Critical Essay Award, Duke University
2011 Student Incentive Award in Science Education, Duke University
2011 Anne Flexner Poetry Award, Second Place, Duke University

High School Honors & Awards

- 2009 Valedictorian, Gilmour Academy
2009 Cleveland Technical Societies Scholarship
2009 Paul Primeau Award for Achievement in Science, Gilmour Academy
2009 Advanced Placement Scholar with Distinction
2009 National Merit Scholarship Finalist
2009 Thomas Jefferson Award for Achievement in American Government, Gilmour Academy
2007, '08, '09 Rick Bruns Prize for Creative Writing, Gilmour Academy
2006, '07, '08, '09 John Gale Award for Achievement in English, Gilmour Academy

PUBLICATIONS

Scientific Articles

Holmes, A.J., Holt, D.J., Coombs, G., Hollinshead, M.O., Crowell-McQuarrie, S., Beam, E.H., Boeke, E.B., Nyar, M., Padrelli, P., Farabaugh, A., Fava, M., Roffman, J.L., Smoller, J.W., & Buckner, R.L. (submitted). Compromised amygdala-medial prefrontal circuit anatomy in healthy young adults with subthreshold depression.

Siless, V., Davidow, J.Y., Nielsen, J., Fan, Q., Hedden, T., Hollinshead, M., Beam, E.H., Bustamante, C.V., Garrad, M.C., Santillana, R., Shaw, E., Hamadeh, A., Snyder, J., Drews, M.K., Van Dijk, K.R.A., Sheridan, M., Buckner, R.L., Somerville, L.H., & Yendiki, A. (2020). Registration-free analysis of diffusion MRI tractography data across subjects through the human lifespan. *NeuroImage*. DOI: 10.1016/j.neuroimage.2020.116703.

Beam, E.H., Potts, C., Poldrack, R.A., & Etkin, A. (2019). A computational knowledge engine for human neuroscience. *BioRxiv*. DOI: 10.1101/701540.

Beam, E.H.,* Appelbaum, L.G.,* Jack, J., Moody, J., & Huettel, S.A. (2014). Mapping the semantic structure of cognitive neuroscience. *Journal of Cognitive Neuroscience*, 26(9).

Book Chapter

Jack, J., Appelbaum, L.G., Beam, E.H., Huettel, S.A., & Moody, J. (2017). Mapping rhetorical topologies in cognitive neuroscience. In L. Walsh & C. Boyle. (Eds.), *Topologies as Techniques for a Post-Critical Rhetoric* (pp. 125-150). New York, NY: Palgrave Macmillan.

University Articles

Beam, E.H. (2019). How the brain learns to learn. *NeuWrite West Blog*.

Beam, E.H. (2018). Resolving conflict in the medial frontal cortex. *NeuWrite West Blog*.

Beam, E.H. (2014). Brain and language on the fly: The neuroscience of linguistic improvisation. *Harvard Science Review*, 27(2).

Beam, E.H. (2013). Data: The bigger the better? *Harvard Science Review*, 27(1).

Beam, E.H. (2012). Creativity and the default network. *Neurogenesis: The Undergraduate Journal of Neuroscience*, 2(1).

Beam, E.H. (2010). Sylvia Plath on edge: A case for the correlation of bipolar disorder and exceptional poetic creativity. *Eruditio: Duke Humanities Journal*, 30(1).

Acknowledgments

Holmes, A.J., *et al.* (2015). Brain Genomics Superstruct Project initial data release with structural, functional, and behavioral measures. *Nature Scientific Data*, 2(150031).

Sepulcre, J. (2014). Functional streams and cortical integration in the human brain. *The Neuroscientist*, 20(5).

POSTERS

Beam, E.H., Maron-Katz, A., & Etkin, A. (2017, May). Discovery of post-traumatic stress disorder biotypes by clustering subcortical volumetrics. 34th Annual Stanford Medical Student Research Symposium.

Beam, E.H., Preston, S., & Jain, S. (2017, May). Preliminary outcomes of a novel protocol for phone-based management of antidepressant therapy initiated in primary care. 50th Annual Conference of the Society of Teachers of Family Medicine.

Barbour, T., DeCross, S.N., Holmes, A.J., Boeke, E.A., Beam, E.H., Wolthusen, R.P.F., Crowell, S., Coombs, G., Nyer, M., Buckner, R.L., Fava, M., Farabaugh, A.H., Holt, D.J. (2014, December). Insecure attachment in at-risk youth is associated with hyper-responsivity of a parietofrontal cortical network involved in social behavior. American College of Neuropsychopharmacology Annual Meeting.

Holt, D.J., DeCross, S.N., Holmes, A.J., Boeke, E.A., Beam, E.H., Wolthusen, R.P.F., Crowell, S., Coombs, G., Nyer, M., Buckner, R.L., Fava, M., Farabaugh, A.H. (2014, December). Abnormal amygdala functional connectivity in youth with subclinical delusions. American College of Neuropsychopharmacology Annual Meeting.

Beam, E.H., Coombs, G., Boeke, E., Crowell, S., Fava, M., Farabaugh, A., Holt, D.J., Buckner, R.L., & Holmes, A.J. (2014, September). Frontoparietal network connectivity associates with executive functioning deficits in young adults at risk for depression. Resting State and Brain Connectivity Conference.

Beam, E.H. & Huettel, S.A. (2013, April). Mapping the semantic structure of cognitive neuroscience. Atlantic Coast Conference Meeting of the Minds.

Beam, E.H., Appelbaum, L.G., Moody, J., & Huettel, S.A. (2011, November). Mapping the intrinsic structure of cognitive neuroscience. Society for Neuroscience Annual Meeting.

INVITED TALKS

Platt, M., Jenson, D., Harris, L., Beam, E.H., & Mooney, R. (2013, April). Brain science and our creative culture. Duke Forward. New York, NY.

Appelbaum, L.G. & Beam, E.H. (2012, November). Mapping disciplinary structures using network and semantic analysis. Text>Data Digital Scholarship Series. Durham, NC.

LEADERSHIP

- 8/16 – **Psychiatry Student Interest Group** • Stanford Medical Student Organization
Founding Co-President
Re-established an organization for medical students exploring psychiatry careers. Initiated for-credit seminars (PSYC 249SI, PSYC 277SI). Coordinate community-building events for students and faculty.
- 1/16 – 4/16 **Medicine and the Muse** • Stanford School of Medicine Event for the Arts
Head of the Student Planning Committee
Oversaw planning of exhibit and performances for the annual Medicine and the Muse event.
- 8/09 – 5/13 **Synapse Neuroscience Club** • Duke Undergraduate Organization
President (2012-13), Chair of Community Service (2011-12), Teacher (2009-11)
Founded the Exploring Neuroscience seminar for high school students. Coordinated and co-taught a high school neuroscience course. Managed the Brain Bee and a biweekly seminar.
- 4/12 – 8/13 **Cantos Poetry Magazine** • Duke Undergraduate Organization
Founding Editor-in-Chief (2012-13)
Established the first Duke publication dedicated to poetry. Developed the magazine's mission, obtained funding from Duke Libraries, assembled editors, and printed the first issue.
- 8/09 – 5/12 **The Archive Literary Magazine** • Duke Undergraduate Organization
Co-Editor-in-Chief (2011-12), Associate Editor (2010-11), Staff Editor (2009-10)
Directed editorial meetings, solicitation of submissions, and publication. Coordinated the Blackburn Literary Festival. Organized the first annual launch party.
- 8/11 – 5/13 **John Spencer Bassett Committee** • Duke Undergraduate Organization
Co-Chair of the Student Funding Committee
Led the application process to decide funding for student projects in communication arts.

TEACHING

- 2016 – **The Nervous System** • NBIO 206 • Stanford University
Head Teaching Assistant (Winter '18, '19), Teaching Assistant (Winter '16, '17)
- 2016 – **Psychiatry Careers & Mental Health Perspectives for Medicine**
PSYC 249SI (Fall), PSYC 277SI (Winter) • Stanford University
Head Teaching Assistant (Fall '18), Teaching Assistant (Fall '16, Winter '17, Fall '17)
- 8/09 – 5/13 **Introduction to Neuroscience** • North Carolina School for Science & Math
Course Director ('12) | Ad Hoc Teacher ('09, '10, '11)

CONSULTING

- 7/11 – 8/11 **Pfizer Consumer Healthcare** • *Assistant to Professor Scott Huettel, PhD*
Reviewed the neuroscience literature on creativity to inform recommendations for improving employee innovation.

OUTREACH

- 11/15 – 6/17 **VA Palo Alto Health Care System** • Stanford L-CHAMP Program
Delivered phone-based health coaching through the Longitudinal Community Health Advocacy Medical Partnership (L-CHAMP) program at Stanford Medical School.
- 11/13 – 5/15 **Brigham and Women's Hospital** • Behavioral Activation Group
Designed and taught the Poetry in Motion session each quarter for psychiatry patients working to improve their mood through behavioral change.
- 10/13 – 12/14 **Massachusetts General Hospital** • Book Cart
Served 95 hours offering reading materials and conversation to patients in neuroscience, cancer, and general medical units.
- 1/12 – 5/12 **Threshold Clubhouse** • Psychiatric Rehabilitation Center
Assisted adults with severe mental illness at a center for outpatient psychiatric rehabilitation for 3.5 hours per week.

PROFESSIONAL MEMBERSHIPS

- 2017 – **Association of Women Psychiatrists**
2012 **Phi Beta Kappa, Duke Chapter**, Beta of North Carolina
2011, '18 **Society for Neuroscience**
2009 **Phi Beta Kappa, Cleveland Chapter**

POETIC WORKS

- 2019 – 2020 **Anastomosis Literary Magazine** • Stanford School of Medicine Publication
"The Head Block," "History Significant," "Axis I" ('19). "Evergreen" ('20).
- 2016 **Medicine and the Muse** • Stanford School of Medicine Event for the Arts
"The Head Block," "History Significant," "Evergreen."
- 2009 – 2013 **The Archive Literary Magazine** • Duke Undergraduate Publication
"Edge" (Fall '09). "Mendelian Error," "Ode to el Choque" (Spring '10). "How," "For a Long Time Gone" (Fall '10). "A Drugstore in Northern Ohio," "When the Time Is" (Spring '11). "Facts about the Moon," "The Space Between" (Fall '11). "Correlation," "Jesus He Knows Me" (Spring '12). "The Scientist," "Spinning Man" (Fall '12). "A Brief and Tidy Catalogue of Compulsions" (Spring '13).
- 2009 – 2012 **Duke Arts Festival** • Undergraduate Creative Works Exhibition
"Mendelian Error" ('09). "Around," "When" ('10). "A Drugstore in Northern Ohio," "The Answer," "Whatever" ('11). "Facts about the Moon," "Jesus He Knows Me," "The Scientist" ('12).
- 2012 **Poetry of Neuroscience and Neuroscience of Poetry** • Poetry Reading
Read science-inspired poems for the Duke Neurohumanities Research Group.
- 2012 **Salon: An Evening of Poetry** • Poetry Reading
Read published poems at the first annual launch party for *The Archive*.
- 2009 **Cleveland Clinic Literary eXpressions** • Literary Art Contest
Awarded Best in Show and three Blue Ribbons for "Collecting Echoes," "The Heart of the Matter," and "Seeing Via Sound."