Ellie Beam, PhD

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EDUCATION

2015 – **Stanford University** • School of Medicine • Stanford, CA
Doctor of Medicine (MD) • Degree expected June 2022 • USMLE Step I: 253
Medical Scientist Training Program (MSTP)

2017 – 2021 **Stanford University** • Neurosciences Interdepartmental Program • Stanford, CA
Doctor of Philosophy (PhD) in the Neurosciences • GPA: 4.09
"A data-driven ontology of brain function: Engineered, interrogated, and clinically applied"

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

6/17 – 1/21 **Stanford School of Medicine** • Psychiatry & Behavioral Sciences
PhD Student in the Labs of Professors Amit Etkin, MD, PhD & Russ Poldrack, PhD
Defended a thesis that engineered a data-driven ontology of human brain function through machine learning and natural language processing of the neuroimaging literature. Additional projects included applying the ontology to medical records to predict outcomes, characterizing biases in human neuroimaging, and subtyping psychiatric disorders.

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. Acquired MRI data, assessed psychopathology, and built analysis 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 map the dopamine circuitry for aggression through intersectional genetics approaches in *Drosophila*.

PUBLICATIONS

Peer-Reviewed Articles

Beam, E.H., Potts, C., Poldrack, R.A., & Etkin, A. (2021). A data-driven framework for mapping domains of human neurobiology. *Nature Neuroscience.* DOI: 10.1038/s41593-021-00948-9.

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, 214*(116703). DOI: 10.1016/j.neuroimage.2020.116703.

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). DOI: 10.1162/jocn_a_00604.

Pre-Print

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

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.

Patent

Etkin, A. & Beam, E.H. (2020). Machine learning based generation of ontology for structural and functional mapping. US Patent App. 16/888,530.

University Articles

Beam, E.H. (2020). A brief history of our language for the brain: Vocabulary, dictionary, and poetry. *NeuWrite West Blog.*

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). DOI: 10.1038/sdata.2015.31.

Sepulcre, J. (2014). Functional streams and cortical integration in the human brain. *The Neuroscientist, 20*(5). DOI: 10.1177/1073858414531657.

Manuscripts

Tu, J., Tran, D., & Beam, E.H. (submitted). Neurocysticercosis. *Radiological Society of North America Case Collection.*

Beam, E.H., *et al.* (in prep). Brain-based features extracted from psychiatric notes predict clinical outcomes.

Beam, E.H., *et al.* (in prep). Quantitative biases across the human neuroimaging literature.

POSTERS

Beam, E.H. & Etkin, A. (May 7, 2018). Toward a data-driven ontology of human brain function. Annual Stanford Medical Scientist Training Program Retreat.

Beam, E.H., Maron-Katz, A., & Etkin, A. (May 4, 2017). 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. (May 7, 2017). 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., Coombs, G., Nyer, M., Tootell, R.B.H., Fava, M., Farabaugh, A.H., & Holt, D.J. (December 8, 2014). Insecure attachment in at-risk youth is associated with hyper-responsivity of a parietofrontal cortical network involved in social behavior. American College of Neuropsychopharmacology 53rd Annual Meeting.

Holt, D.J., DeCross, S.N., Holmes, A.J., Boeke, E.A., Beam, E.H., Coombs, G., Nyer, M., Buckner, R., Fava, M., & Farabaugh, A.H. (December 8, 2014). Abnormal amygdala functional connectivity in youth with subclinical delusions. American College of Neuropsychopharmacology 53rd Annual Meeting.

Beam, E.H., Coombs, G., Boeke, E., Crowell, S., Fava, M., Farabaugh, A.H., Holt, D.J., Buckner, R.L., & Holmes, A.J. (September 12, 2014). Frontoparietal network connectivity associates with executive functioning deficits in young adults at risk for depression. 4th Biennial Conference on Resting State and Brain Connectivity.

Beam, E.H. & Huettel, S.A. (April 4, 2013). Mapping the semantic structure of cognitive neuroscience. 8th Annual Atlantic Coast Conference Meeting of the Minds.

Beam, E.H., Appelbaum, L.G., Moody, J., & Huettel, S.A. (November 12, 2011). Mapping the intrinsic structure of cognitive neuroscience. Society for Neuroscience Annual Meeting.

TALKS

Beam, E.H. (May 6, 2019). A computational knowledge engine for human neuroscience. Annual Stanford Medical Scientist Training Program Retreat. Santa Cruz, CA.

Platt, M., Jenson, D., Harris, L., Beam, E.H., & Mooney, R. (April 26, 2013). Brain science and our creative culture. Duke Forward. New York, NY.

Appelbaum, L.G. & Beam, E.H. (November 1, 2012). Mapping disciplinary structures using network and semantic analysis. Text>Data Digital Scholarship Series. Durham, NC.

HONORS & AWARDS

2020 –	Ruth L. Kirschstein National Research Service Award (F30), National Institutes of Health
2017 –	Medical Scientist Training Program (MSTP), National Institutes of Health
2017	Leah J. Dickstein Medical Student Award, Association of Women Psychiatrists
2016 – 2017	Medical Scholars Research Fellowship, Stanford School of Medicine
2016	Pre-Doctoral Research Stipend (T32), Lab of Alan Schatzberg, Stanford 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
2009 – 2013	Angier B. Duke Full-Tuition Memorial Scholarship, Duke University
2009	Cleveland Technical Societies Scholarship
2009	Valedictorian, Gilmour Academy

LEADERSHIP

2016 – **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 and opportunities for mentorship by residents and faculty in psychiatry.

2016 **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.

2012 – 2013 ***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.

2011 – 2013 **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.

2009 – 2013 **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.

2009 – 2012 ***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.

TEACHING

2016 – 2020 **The Nervous System** • NBIO 206 • Stanford University
Head Teaching Assistant (Winter '18, '19), Teaching Assistant (Winter '16, '17)

2016 – 2018 **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)

2009 – 2012 **Introduction to Neuroscience** • North Carolina School for Science & Math
Course Director ('12), Ad Hoc Teacher ('09, '10, '11)

CONSULTING

2011 **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

2018 – **American Medical Association**
2018 – **American Psychiatric Association**
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**

PEER REVIEWS

Drafted peer reviews for articles submitted to the following journals:
Translational Psychiatry, The American Journal of Psychiatry, Acta Psychiatrica Scandinavica

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," "The Scientist" ('12).

2012 **Poetry of Neuroscience and Neuroscience of Poetry** • Poetry Reading
Read science-inspired poems for the Duke Neurohumanities Research Group.

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."