

Mai-Anh T. Vu

Rajen Kilachand Center for Integrated Life Sciences & Engineering
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Education & Training

- 2018 - **Boston University**
NIH Brain Initiative Postdoctoral Fellow, Research Scientist
Mentor: Mark Howe, Ph.D.
- 2018 **Duke University**
Ph.D., Neurobiology;
Certificate in Cognitive Neuroscience
Certificate in College Teaching
Mentors: R. Alison Adcock, M.D., Ph.D. & Kafui Dzirasa, M.D., Ph.D.
- 2009 **Yale University**
B.A., Cognitive Science

Fellowships & Funding

- 2019-2022 **NIH Brain Initiative Postdoctoral National Research Service Award: \$244,379**
- 2017 Duke University Graduate School Conference Travel Award: \$525
- 2017-2018 Duke University Katherine Goodman Stern Fellowship: \$30,882
- 2016 Duke University Graduate School Conference Travel Award: \$525 x2
- 2013-2017 **National Science Foundation Graduate Research Fellowship Award: \$134,000**
- 2012-2016 Duke University James B. Duke Fellowship: \$20,000
- 2012 Duke University Chancellor's Fellowship: \$5,000

Awards

- 2018 Duke University Dean's Award for Excellence in Teaching
- 2015-2016 Duke Scholar in Molecular Medicine
- 2009 Yale University Asian American Cultural Center Leadership Award
- 2008 Yale University Asian American Cultural Center Appreciation Award
- 2005 National Merit Scholar

Research Appointments

- 2018-present **Howe Lab**
Boston University
PI: Mark Howe, Ph.D.
NIH Postdoctoral Fellow
Research Scientist
- 2012-2018 **Motivated Memory Lab**
Duke University
PI: R. Alison Adcock, M.D., Ph.D.
PhD Student
- 2013-2018 **Laboratory for Psychiatry Neuroengineering**
Duke University
PI: Kafui Dzirasa, M.D., Ph.D.
PhD Student
- 2013-2017 **Heller Lab**
Duke University
PI: Katherine Heller, Ph.D.
Graduate Rotation Student
Collaborating Graduate Student
- 2009-2012 **Psychiatry Neuroimaging Laboratory**
Harvard Medical School, Brigham & Women's Hospital
Director: Martha E. Shenton, Ph.D.
Research Assistant
Head Research Assistant,
- 2006-2008 **Arnsten Lab**
Yale University
PI: Amy F. T. Arnsten, Ph.D.
Undergraduate Research Assistant
- 2007 **Schacter Memory Lab**
Harvard University
PI: Daniel L. Schacter, Ph.D.
Mentor: Donna Rose Addis, Ph.D.
Undergraduate Research Assistant

Peer-Reviewed Publications

Poh J-H, **Vu MT**, Stanek JK, Hsiung A, Egnér T, Adcock RA. Hippocampal convergence during anticipatory midbrain activation promotes subsequent memory formation. *Nature Communications* 2022; 13: 6729. [[open access article via Nature Communications](#)]

Chiew KS, Hashemi J, Gans LK, Lerebours L, Clement NJ, **Vu MT**, Sapiro G, Heller NE, Adcock RA. Motivational valence alters memory formation without altering exploration of a real-life spatial environment. *PLoS One* 2018; 13(3): e0193506. [[open access article via PLoS One](#)]

Hultman R*, Ulrich K*, Sachs BD, Blount C, Carlson DE, Ndubizu N, Bagot RC, Parise EM, **Vu MT**, Gallagher NM, Wang J, Silva AJ, Deisseroth K, Mague SD, Caron MG, Nestler EJ, Carin L⁺, Dzirasa K⁺. Brain-wide electrical spatiotemporal dynamics encode depression vulnerability. *Cell* 2018; 173(1):166-180.e14. [[PubMed](#)] *denotes equally contributing authors; ⁺denotes equally contributing authors

Vu MT, Adali T, Ba D, Buzsáki G, Carlson D, Heller K, Liston C, Rudin C, Sohal VS, Widge A, Mayberg H, Sapiro G, Dzirasa K. A Shared Vision for Machine Learning in Neuroscience. *The Journal of Neuroscience* 2018; 38(7):1601-1607. [[PubMed](#)].

Carlson D*, David LK*, Gallagher NM*, **Vu MT***, Shirley M, Hultman R, Wang J, Burrus C, McClung CA, Kumar S, Carin L, Mague SD, Dzirasa K. Dynamically-timed stimulation of corticolimbic circuitry activates a stress-compensatory pathway. *Biological Psychiatry* 2017; 82(12):904-913. [[open access article via Elsevier](#)]. *denotes equally contributing authors

Schaich Borg J*, **Vu M***, Badea C, Badea A, Johnson GA, Dzirasa K. Localization of metal electrodes in the intact rat brain using registration of 3-D micro-computed tomography images to a magnetic resonance histology atlas. *eNeuro* 2015; 2(4). *denotes equally contributing authors [[open access article via eNeuro](#)]

Kikinis K, Fitzimmons J, Dunn C, **Vu MA**, Makris N, Bouix S, Goldstein JM, Meshulam-Gately RI, Petryshen T, Del Re EC, Wojcik J, Seidman LJ, Kubicki M. Anterior commissural white matter fiber abnormalities in first-episode psychosis: a tractography study. *Schizophrenia Bulletin* 2015; 162(1-3):29-34. [[open access article via PubMed Central](#)]

Hütlova J, Kikinis Z, Kerkovsky M, Bouix S, **Vu MA**, Makris N, Shenton M, Kasperek T. Abnormalities in Myelination of the Superior Cerebellar Peduncle in Patients with Schizophrenia and Deficits in Movement Sequencing. *The Cerebellum* 2014: 1-10. [[PubMed](#)]

Vu MT, Thermenos HW, Terry DP, Wolfe DJ, Voglmaier MM, Niznikiewicz MA, McCarley RW, Seidman LJ, Dickey CC. Functional differences during working memory in schizotypal personality disorder: fMRI activation and deactivation differences. *Schizophrenia Research* 2013; 151(1):113-123. [[PubMed](#)]

Addis DR, Giovanello KS, **Vu MT**, Schacter DL. Age-related changes in prefrontal and hippocampal contributions to relational encoding. *Neuroimage* 2014; 84:19-26. [[open access article via PubMed Central](#)]

Clemm von Hohenberg C, Pasternak O, Kubicki M, Ballinger T, **Vu M**, Swisher T, Green K, Giwerc K, Dahlben B, Goldstein JM, Woo TW, Petryshen TL, Meshulam-Gately RI, Woodberry KA, Thermenos HW, Mulert C, McCarley RW, Seidman LJ, Shenton ME. White matter microstructure of the parietal lobe is altered in the psychosis prodromal syndrome: a whole-brain diffusion-tensor imaging study.

Schizophrenia Bulletin 2014; 40(4):895-903. [[open access article via PubMed Central](#)]

Dickey CC, **Vu M-A T**, Voglmaier MM, Niznikiewicz MA, McCarley RW, Panych LP. Prosodic abnormalities in schizotypal personality disorder. *Schizophrenia Research* 2012; 142(1-3):20-30. [[open access article via PubMed Central](#)]

Shenton ME, Hamoda H, Schneiderman J, Bouix S, Pasternak O, Rathi Y, **Vu M-A**, Purohit MP, Helmer K, Koerte I, Lin AP, Westin C-F, Kikinis R, Kubicki M, Stern RA, Zafonte R. A review of magnetic resonance imaging and diffusion tensor imaging findings in mild traumatic brain injury. *Brain Imaging and Behavior* 2012; 6:137-192. [[open access article via PubMed Central](#)]

Addis DR, Pan L, **Vu MA**, Laiser N, Schacter DL. Constructive episodic simulation of the future and the past: distinct subsystems of a core brain network mediate imagining and remembering. *Neuropsychologia* 2009; 47(11):2222-38. [[PubMed](#)]

Hains AB, **Vu MA**, Maciejewski PK, van Dyck CH, Gottron M, Arnsten AF. Inhibition of protein kinase C signaling protects prefrontal cortex dendritic spines and cognition from the effects of chronic stress. *Proceedings of the National Academy of Science USA* 2009; 106(42):17957-62. [[open access article via PubMed Central](#)]

Brennan AR, Dolinsky B, **Vu MA**, Stanley M, Yeckel MF, Arnsten AF. Blockade of IP3-mediated SK channel signaling in the rat medial prefrontal cortex improves spatial working memory. *Learning & Memory* 2008;15(3):93-6. [[open access article via PubMed Central](#)]

Teaching

2020-2023 **Guest Lecturer, Boston University**
Spring PS 504: Trends in Contemporary Psychology: Neurobiology of Motivation and Movement Control
Instructor: Mark Howe, Ph.D.
Guest lecture: "Studies on Human Motivation"

2022 Spring **Guest Lecturer, Purdue University**
Psy 20000: Introduction to Cognitive Psychology
Instructor: Nadia Brashier, Ph.D.
Guest lecture: "Learning from Experience: From Pavlov's Dogs to Computers Solving Problems"

2015 Fall **Teaching Assistant, Duke University**
Neurosci 211: Brain & Behavior: Translating Neuroscience (~50 undergraduates)
Instructors: Kafui Dzirasa, M.D., Ph.D.; Rainbo Hultman, Ph.D.; Stephen Mague, Ph.D.
Instructor for two weekly discussion sections, assisted in course design, led additional review sessions, created and graded assignments/assessments
Guest lecture: "Social Processes"

- 2015 Spring **Teaching Assistant, Duke University**
 Neurosci 223: Cellular & Molecular Neurobiology (~ 100 undergraduates)
 Instructors: Nina Sherwood, Ph.D. & Pelin Volkan, Ph.D.
 Instructor for weekly discussion section, led additional review sessions, graded assignments, and created problem sets for undergraduates
- 2010-2012 **Mentor, Tutor, Classroom Assistant**
 Boston Partners in Education
 Fenway High School
- 2008-2009 **Assistant Director, ESL Teacher, Camp Counselor**
 NACEL American Village (France)

Service

- 2022 Planning Committee, The Brain Initiative Meeting 2022: Open Science, New Tools
 2017-2018 Student Representative, Duke Institute for Brain Sciences Strategic Planning Committee
 2017-2018 Student Representative, Neurobiology Diversity & Inclusion Committee
 2016-2017 Student Representative, Neurobiology Seminar Committee
 2015-2016 Co-Chair, Duke Institute for Brain Sciences Graduate Consortium
 2013-2014 Coordinator, Center for Cognitive Neuroscience Journal Club
 2013, 2014 Student Coordinator, Cognitive Neuroscience Admitting Program Recruitment
 2013, 2014 Presenter and Activity Leader, Brain Awareness Week

Mentorship

- 2022- Aaquib Attarwala, Boston University undergraduate research assistant
 2019-2022 Benjamin Graham, Boston University undergraduate research assistant, honors thesis, lab technician
 2018-2020 Michelle Jingyi Wen, Boston University undergraduate research assistant, lab technician
 2017-2018 Janie Wang, North Carolina School for Science and Math high school student
 2017 Alexandra Martinez Lopez, Josephine Dobbs Clement Early College High School student
 2017 H. Kossamak Thit, North Carolina School for Science and Math high school student
 2016-2018 Cameron Blount, Dzirasa Lab technician
 2016-2018 Deeksha Malhotra, Duke undergraduate independent study, honors thesis
 2015-2017 Meghana Vagwala, Duke undergraduate independent study (x5)
 2016-2017 Laura Lerebours, Adcock Lab manager
 2016 Elise Adamson, Duke Science Research Opportunities Program (SROP) student
 2015 Caley Burrus, Duke undergraduate independent study, lab technician
 2015 Gwenaëlle Thomas, Duke Science Research Opportunities Program (SROP) student
 2014-2016 Joyce Wang, Duke neuroscience undergraduate, lab technician
 2013-2016 Lisa David, Duke neuroscience undergraduate honors thesis, lab technician

Presented Abstracts

Vu MT, Wen MJ, Brown EH, Mroz L, Otchy TM, Boas DA, Howe MW. Spatially and Temporally Selective Dynamics of Striatum-Wide Dopamine Release to Conditioned and Unconditioned Stimuli and Rewards. *Winter Conference on Brain Research*. Salt Lake City, UT, 2023.

Vu MT, Wen MJ, Brown EH, Otchy TM, Perkins LN, Boas DA, Howe MW. Spatiotemporal topography of striatum-wide dopamine release during Pavlovian Learning. *Brain Initiative Meeting*. Virtual, 2022.

Vu MT, Wen MJ, Brown EH, Otchy TM, Perkins LN, Boas DA, Howe MW. Spatiotemporal topography of striatum-wide dopamine release during Pavlovian Learning. *Dopamine Society Meeting*. Montreal, Quebec, Canada, 2022.

Vu MT, Wen MJ, Brown EH, Otchy TM, Perkins LN, Boas DA, Howe MW. Functional and spatial heterogeneity in striatal dopamine release. *Brain Initiative Investigators Meeting*. Virtual, 2021.

Vu MT, Stanek JK, Lerebours L, Egner T, Adcock RA. Functional Brain Networks Linking Motivated Anticipation to Subsequent Memory. *Society for Neuroscience Annual Meeting*, San Diego, CA, 2018.

Vu MT, Stanek JK, Lerebours L, Egner T, Adcock RA. Dorsolateral prefrontal cortex holds motivational state during anticipation to influence subsequent memory. *Society for Neuroscience Annual Meeting*, Washington, D.C., 2017.

Vu MT, Burrus CJ, Vagwala M, Mague SD, David LK, Wang J, Thomas GE, Adcock RA, Soderling SH, Dzirasa K. Anticipatory and reward-responsive neural activity of mesocorticolimbic DA circuitry in mice performing a sample-to-match task. *Society for Neuroscience Annual Meeting*, San Diego, CA, 2016.

Vu MT*, Carlson D*, David LK*, Gallagher NM*, Lin L*, Urban DJ, Srivastava S, Shirley M, Hultman R, Burrus C, Wang J, McClung CA, Dunson D, Carin L, Kumar S+, Mague SD+, Dzirasa K+. A corticolimbic mesoscale network adapts in response to challenging experiences. *Gordon Research Conference on Optogenetic Approaches to Understanding Neural Circuits & Behavior*, Newry, ME, 2016. *denotes equally contributing authors, +denotes equally contributing senior authors

Vu MT, Stanek JK, Lerebours L, Egner T, Adcock RA. Curiosity switches the relationship between hippocampus activation and memory success. *Cognitive Neuroscience Society Annual Meeting*, New York, NY, 2016.

Vu M, Burrus C, Vagwala M, Thomas G, David L, Wang J, Mague S, Adcock RA, Soderling S, Dzirasa K. Altered neural firing patterns signal cognitive deficits in a mouse model of schizophrenia. *Basic Science Day, Duke University School of Medicine*, Durham, NC, 2015.

Vu MAT, Sumner EJ, Ballard IC, Murty VP, Chong SA, Subramaniam M, Kraus MS, Poh JS, Dorairaj K, Thong J, Yaakub S, Keeong JLC, Chee MWL, Keefe RSE, Adcock RA. How Reward Information Reaches VTA Depends on Task Context: A DCM Study. *Society for Neuroscience Annual Meeting*, Washington, D.C., 2014.

Vu MT, Kikinis Z, Peled S, Kulkarni P, Ferris C, Bouix S, Makinodan M, Kubicki M, Corfas G, Shenton ME. Changes in Myelination of Anterior Commissure in Mice with Loss of ErbB Receptor Signaling in Oligodendrocytes. *Society of Biological Psychiatry Annual Meeting*, Philadelphia, PA, 2012.

Vu MT, Kikinis Z, Peled S, Kulkarni P, Ferris C, Makris N, Bouix S, Makinodan M, Kikinis R, Kubicki M, Corfas G, Shenton ME. Changes in Myelination of Anterior Commissure in Mice with Loss of ErbB Receptor Signaling in Oligodendrocytes. *VA Research Week*, VA Boston Healthcare System, Harvard Medical School, Boston, MA, 2012.

Vu MT, Kikinis Z, Peled S, Kulkarni P, Ferris C, Makris N, Bouix S, Makinodan M, Kikinis R, Kubicki M, Corfas G, Shenton ME. Changes in Myelination of Anterior Commissure in Mice with Loss of ErbB Receptor Signaling in Oligodendrocytes. *Harvard Psychiatry Annual Research Day*, Department of Psychiatry, Harvard Medical School, Boston, MA, 2012.

Vu MT, Wolfe DJ, McCarley RW, Niznikiewicz MA, Voglmaier MM, Shenton ME, Dickey CC. Default Mode Network Abnormalities in Schizotypal Personality Disorder. *Harvard Psychiatry Annual Research Day*, Department of Psychiatry, Harvard Medical School, Boston, MA, 2011.

Vu MT, Zacks RB, Henry AM, McCarley RW, Panych LP, Voglmaier M, Niznikiewicz MA, Terry DP, Shenton ME, Dickey CC. Pars opercularis volumes, verbal fluency, and prosody deficits in schizotypal personality disorder: A common origin?. *VA Research Week*, VA Boston Healthcare System, Harvard Medical School, Boston, MA, 2010.

Vu MT, Zacks RB, Henry AM, McCarley RW, Panych LP, Voglmaier M, Niznikiewicz MA, Terry DP, Shenton ME, Dickey CC. Pars opercularis volumes, verbal fluency, and prosody deficits in schizotypal personality disorder: A common origin?. *Harvard Psychiatry Annual Research Day*, Department of Psychiatry, Harvard Medical School, Boston, MA, 2010.