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Dept. Psychology, 340U Baker Hall
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Education

Ph.D. in Psychology, Emphasis: Cognition, Brain and Behavior

University of California, Berkeley (December 2006)

B.A. in Psychology, University of New Mexico (May 2001)

Professional Experience

2012-Present	Assistant Professor, Psychology & CNBC, Carnegie Mellon Univ.
2011-2012	Research Associate, LRDC, Univ. Pittsburgh
2009-2011	Post-doctoral Fellow, Psychology, Univ. Pittsburgh
2006-2009	Post-doctoral Fellow, Neuroscience, UCSF
2001-2006	Graduate Student Researcher, Psychology, UC Berkeley

Academic Honors

2001	University Honors, Suma Cum Laude, University of New Mexico
2000	Departmental Honors, Dept. of Psychology, University of New Mexico

Awards

2008-2009	Swartz Foundation Fellowship, Theoretical Neurobiology
2007	Society for Neuroscience Postdoctoral Travel Award
2006	Travel Award, Human Brain Mapping Conference, Florence Italy
2006-2007	Vision Science Training Grant Fellowship, UCSF
2002-2004	Cognitive Neuroscience Training Grant Fellowship, UC Berkeley
1999	Travel Award, HealthEmotions Institute, Madison Wisconsin.
1999-2001	New Mexico Access to Research Careers-COR Fellowship.
1996-2000	University Scholars Scholarship from the University of New Mexico

Grants

Principal Investigator: Translational Neuroscience Research Award, Sandler Foundation: \$15,000; **Status:** Completed, Dates: 1/1/2007 – 12/31/2007;

Co-Investigator: “Influence of Physical Activity and Weight Loss on Brain Plasticity”, NIH-RO1: \$2,723,812; **Status:** Funded (PI: K. Erickson), Dates: 6/1/2012-5/31/2017

Co-Investigator: “Neurobiological pathways linking stress and emotion to atherosclerosis”, NIH- RO1: \$1,910,235; **Status:** Funded (PI: P. Gianaros), Dates: 2/1/2012 - 1/31/2017

Co-Investigator: “BIGDATA: Mid-Scale: DA: Distribution-based machine learning for high dimensional datasets”, NSF: \$1,000,00; **Status:** Funded (PI: A. Singh), Dates:1/1/2013-12/31/2016.

Principal Investigator: “Action binding during long-term sequential skill learning: computational and neural mechanisms”, NSF-CAREER: \$1,340,67; **Status:** Submitted.

Manuscripts in Preparation

“Weight-related variation in cortico-basal ganglia connectivity predicts inefficient executive control processing.” **T. Verstynen**, R. Leckie, A. Weinstein, D. Rofey, J. Jakicic, W. Schneider, K. Erickson (submitted).

“Dynamic sensorimotor planning during long-term sequence learning: the role of variability, response chunking and planning errors.” **T. Verstynen**, J. Phillips, E. Braun, B. Workman, C. Schunn, and W. Schneider (resubmitted)

“Cerebral Blood Flow Links Insulin Resistance and Baroreflex Sensitivity” J.P. Ryan, L.K. Sheu, **T. Verstynen**, I.C. Onyewuenyi, P.J. Gianaros (submitted)

Peer Reviewed Publications

2012

"Rethinking the role of the middle longitudinal fascicle in language and auditory pathways." Y. Wang, J.C. Fernández-Miranda, **T. Verstynen**, S. Pathak, W. Schneider, F.-C. Yeh. *Cerebral Cortex* (in press).

"Inflammatory pathways link socioeconomic inequalities to white matter architecture." P. Gianaros, A. Marsland, L. Sheu, K. Erickson, **T. Verstynen**. *Cerebral Cortex* (in press).

"Caudate nucleus volume mediates the link between cardiorespiratory fitness and cognitive flexibility in older adults." **T. Verstynen***, B. Lynch*, D. Miller, M. W. Voss, R. S. Prakash, L. Chaddock, C. Basak, A. Szabo, E. A. Olson, T. R. Wojcicki, J. Fanning, N. P. Gothe, E. McAuley, A.F. Kramer, K. I. Erickson. *Journal of Aging Research*, 2012, Article ID 939285 (2012). * authors contributed equally

“Increased body mass index is associated with global decreases in white matter microstructural integrity.” **T. Verstynen**, A. Weinstein, D. Rofey, W. Schneider, J. Jakicic, K. Erickson. *Psychosomatic Medicine* (in press).

“Microstructural organizational patterns in the human corticostriatal system.” **T. Verstynen**, D. Badre, K. Jarbo and W. Schneider. *J Neurophys.* 107(11):2984-95 (2012).

“High definition fiber tractography of the human brain: Neuroanatomical validation and neurosurgical applications.” J.C. Fernandez-Miranda, J. Engh, S. Pathak, K. Jarbo, **T. Verstynen**, Y. Wang, F. Boada, W. Schneider, R. Friedlander *Neurosurgery* 71(2):430-53 (2012).

"Visuotopic cortical connectivity underlying attention revealed with white-matter tractography." A. Greenberg, **T. Verstynen**, Y.C. Chiu, S. Yantis, W. Schneider, M. Behrmann. *J. Neuroscience* 32(8), 2773-2782 (2012).

"In vivo quantification of global connectivity in the human corpus callosum." K. Jarbo, **T. Verstynen**, W. Schneider. *NeuroImage* 59(3): 1988-1996 (2012).

“High definition fiber tracking for assessment of neurologic deficit in a case of traumatic brain injury: Finding, visualizing, and interpreting small sites of TBI damage.” S. Shin, **T. Verstynen**, S. Pathak, K. Jarbo, A. Hricik, M. Maserati, S. Beers, A.M. Puccio, D. Okonkwo, W. Schneider. *J. Neurosurgery* 116(5):1062-9 (2012).

2011

“How each movement changes the next: an experimental and theoretical study of fast adaptive priors in reaching.” **T. Verstynen** and P.N. Sabes. *J. Neuroscience* 31(27):10050-10059 (2011).

“Using pulse oximetry to account for high and low frequency physiological artifacts in the BOLD signal” **T. Verstynen** and V. Deshpande. *NeuroImage*. 55(4):1633-44 (2011).

“Network dynamics mediating ipsilateral motor cortex activity during unimanual actions.” **T. Verstynen** and R.B. Ivry. *J Cog Neuro* 23(9):2468-80. (2011).

“In vivo assessment of microstructural topographies in the human corticospinal pathways.” **T. Verstynen**, K. Jarbo, S. Pathak, and W. Schneider. *J Neurophysiol*. 105: 336-346 (2011).

2010

“Transcranial magnetic stimulation of posterior parietal cortex affects decisions of hand choice.” F. Olivera, J. Diedrichsen, **T. Verstynen**, J. Duque and R.B. Ivry. *Proc Natl Acad Sci U S A*. (2010). 107(41):17751-177556

“Evidence of somatotopy in the lateral cerebellar hemisphere for coordinated actions.” J. Schlerf*, **T. Verstynen***, R.B. Ivry, and R. Spencer. *J. Neurophysiol*. 103(6):3330-3336 (2010). *co-first authors

2008

“Prefrontal and parietal contributions to refreshing: An rTMS study” B.T. Miller, **T. Verstynen**, M. K. Johnson, M. D’Esposito. *NeuroImage* 39:436-440 (2008).

“Voluntary and involuntary attention affect face discrimination differently ” M. Esterman, W. Prinzmetal, J. DeGutis, A. Landau, E. Hazeltine, **T. Verstynen**, and L. Robertson. *Neuropsychologia* 46(4):1032-40 (2008).

2007

"Cerebellar activation during discrete and not continuous timed movements: an fMRI study" Rebecca Spencer, **T. Verstynen**, M. Brett & R. B. Ivry. *NeuroImage* 36, 378-87 (2007). * Winner of the Editors Choice Award for Systems Neuroscience 2007.

"Attenuating illusory binding with TMS of the right parietal cortex" M. Esterman, **T. Verstynen** & L. C. Robertson. *NeuroImage* 35, 1247-1255 (2007).

"Ipsilateral corticospinal projections do not predict congenital mirror movements: A case report." **T. Verstynen**, R. Spencer, C. Stinear, T. Konkle, J. Diedrichsen, W. Byblow & R. B. Ivry *Neuropsychologia* 45(4), 844-852 (2007).

"Illusions of force perception: the role of sensori-motor predictions, visual information, and motor errors." J. Diedrichsen*, **T. Verstynen***, A. Hon, Y. Zhang & R.B. Ivry. *J Neurophysiol* 97, 3305-3313 (2007). *co-first authors

2006

"Coming Unbound: disrupting automatic integration of synesthetic color and graphemes by TMS of the right parietal lobe" M. Esterman, **T. Verstynen**, R.B. Ivry & L.C. Robertson. *J Cog Neuro* 18, 1570-1576 (2006).

"Two types of TMS-induced movement variability following stimulation of the primary motor cortex." **T. Verstynen**, T. Konkle, & R. B. Ivry. *J Neurophysiol* 96, 1018-1029 (2006).

2005

"Ipsilateral motor cortex activity during unimanual hand movements relates to task complexity" **T. Verstynen***, J. Diedrichsen*, N. Albert, P. Aparicio, and R.B. Ivry. *J Neurophysiol* 93(3), 1209-1222 (2005). *co-first authors

"Cerebellar involvement in anticipating the consequences of self-produced actions during bimanual movement." J. Diedrichsen, **T. Verstynen**, S. Lehman, & R.B. Ivry. *J Neurophysiol* 93(2), 801-812 (2005).

2003

"Anticipatory adjustments in the unloading task: Is an efference copy necessary for learning?" J. Diedrichsen, **T. Verstynen**, A. Hon, S. Lehman and R.B. Ivry, *Exp Brain Res* 148, 272-276 (2003).

2002

"Early life exposure to a novel environment modulates 'handedness' in rats" A. C. Tang and **T. Verstynen**, *Behavioural Brain Research* 131, 1-7 (2002).

2001

"Neonatal novelty exposure modulates hippocampal volumetric asymmetry in the rat" **T. Verstynen**, R. Tierney, T. Urbanski, and A. Tang. *NeuroReport* 12(14), 3019-3022 (2001).

Book Chapters and Invited Reviews

"Big Challenges from the 'Little Brain': Imaging the Cerebellum." J. Schlerf, T. Weister, **T. Verstynen**, and J. Diedrichsen. In *Functional Magnetic Resonance Imaging: Book 1*. Intech Web. (in press)

"Advances in functional imaging of the human cerebellum." J. Diedrichsen, **T. Verstynen**, J. Schlerf, and T. Wiester. *Current Opinion in Neurology*. 23(4):382-387 (2010).

"Experiencing the future: The influence of self-initiation on temporal perception." **T. Verstynen**, M. Oliver, & R. B. Ivry. In *Space and Time in Perception and Action*; Ed. Romi Nijhawan. pp. 164-180 (2010).

Ad Hoc Review Experience

Journal of Neuroscience

Cerebral Cortex

Journal of Cognitive Neuroscience

Journal of Neurophysiology

JEP: Human Percept. & Performance

Journal of Neuroscience Methods

Psychosomatic Medicine

Clinical Neurology and Neurosurgery

Neuropsychologia

Journal of Motor Behavior

Experimental Brain Research

Quarterly Review of Exercise & Sport Science

Teaching Experience

- 2002 *UCB Psychology 127: Cognitive Neuroscience*
Duties: Graduate student instructor that involved teaching weekly discussion sections, reviewing and assisting students in reading current class-relevant literature, and test preparation.
- 2002 *UCB Cognitive Science 84: Transcranial Magnetic Stimulation*
Duties: Technical assistant that was primarily involved in demonstrations of TMS experiments, assisting in programming group designed experiments and training students to use TMS.
- 2003 *UCB Psychology 101: Research Design and Statistics*
Duties: Graduate student instructor that involved teaching 2 weekly discussion sections, statistical laboratories, reviewing and assisting students in homework problems.
- 2011 *University of Pittsburgh: In-vivo Fiber Tractography Short Courses (2 per year)*
Duties: Instructor of workshop designed to train basic proficiency at white matter tractography methods. Also designed as independent guest lectures in diffusion imaging classes.
- 2012 *University of Pittsburgh Psychology 499: Brain Connectivity Class*
Duties: Guest lecturer and guided laboratory tutorials.
- 2012 *Brown University: In-vivo Fiber Tractography Workshop*
Duties: Two day accelerated workshop on white matter tractography methods.

Scientific Advisory Boards

2009-Present	Neuroscouting, LLC
2010-Present	Zombie Research Society

Professional Affiliations

Cognitive Neuroscience Society	Society for the Neural Control of Movement
Society for Neuroscience	Organization for Human Brain Mapping
American Physiological Society	

Invited Talks

- Oct 7, 2011:* Biological & Health Psychology Brown Bag Series. University of Pittsburgh, Pittsburgh
- May 14, 2010:* Psychology Afternoon Lecture Series. University of New Mexico, Albuquerque
- July 27, 2009:* Sloan-Swartz Annual Meeting on Computational Neuroscience, Harvard University, Cambridge
- April 2, 2008:* Interdisciplinary Forum on Cognitive Neuroscience Seminar, University of California, San Francisco

March 20, 2007: Interdisciplinary Forum on Cognitive Neuroscience Seminar, University of California, San Francisco

October 19, 2006: Informal Seminar: Human Motor Control Section, National Institute of Health (NIH), Bethesda, MD

April 26, 2006: Department of Psychology Seminar, University of Auckland, New Zealand

February 16, 2006: Cognition, Brain and Behavior Symposium, Department of Psychology, University of California, Berkeley

Conference Presentations

"Gray matter volume, cardiorespiratory fitness, and cognitive function: a whole brain, voxel-based mediation analysis." A.M. Weinstein, **T. Verstynen**, R.S. Prakash, M.W. Voss, L. Chaddock, A. Szabo, E. McAuley, A.F. Kramer, K.I. Erickson. *Abst. Society for Neuroscience 2012*.

"Altered cortico-basal ganglia connectivity with obesity predicts inefficient executive control processing" **T. Verstynen**, R. Leckie, A. M. Weinstein, J. Jakicic, D. L. Rofey, K. I. Erickson. *Abst. Society for Neuroscience 2012*.

"The Influence of an Aerobic Exercise Intervention on Brain Volume in Late Adulthood", K. I. Erickson, A. M. Weinstein, **T. D. Verstynen**, M. W. Voss, R. Shaurya Prakash, J. Woods, E. McAuley, A. F. Kramer, *ICAD 2012*

"Resting State Connectivity Links Community Socioeconomic Status to Preclinical Atherosclerosis" L. Sheu, M. Wu, I. Christie, **T. Verstynen**, P. Gianaros, *HBM 2010*.

"The behavioral, neurophysiological and anatomical changes following long term motor skill learning." **T. Verstynen**, B. Workman, E. Braun, J. Phillips, C. Schunn, W. Schneider. *Abst. Society for Neuroscience 2011*.

"Topographic structural connectivity underlying visual attention." A. Greenberg, **T. Verstynen**, Y.-C. Chiu, S. Yantis, W. Schneider, M. Behrmann. *Abst. Society for Neuroscience 2011*.

"White matter connectivity of the human superior temporal sulcus using diffusion imaging." J.A. Pyles, **T.D. Verstynen**, W. Schneider, M.J. Tarr. *Abst. Society for Neuroscience 2011*.

"Increased BMI is associated with globally decreased white matter integrity." **T. Verstynen**, A. Weinstein, W. Schneider, J. Jakicic, K.I. Erickson. *Abst. Human Brain Mapping 2011*.

"Clinical Quality Fiber Tracking and Connectome Mapping in Neurosurgery & Traumatic Brain Injury." W. Schneider, K. Jarbo, S. Sin, **T. Verstynen**, S. Pathak, J. Fernandez-Miranda, D. Okonkwo, F. Boada. *Abst. Human Brain Mapping 2011*.

"Spatiotopic Structural Connectivity Underlying Visual Attention." A. Greenberg, **T. Verstynen**, W. Schneider, M. Behrman. *Abst. Human Brain Mapping 2011*.

"Structural connectivity of face selective cortical regions with high-definition fiber-tracking." J. Pyles, **T. Verstynen**, W. Schneider, M. Tarr. *Abst. Vision Sci. Soc. 2011*.

“High definition fiber tracking of corticostriatal projection subfields in vivo.” **T. Verstynen**, K. Jarbo, J. Phillips, S. Pathak, W. Schneider. *Abst. Cog. Neuro. Soc. 2011*.

“High definition fiber tracking of corpus callosum fiber pathways.” Kevin Jarbo, Timothy Verstynen and Walter Schneider. *Abst. Cog. Neuro. Soc. 2011*.

“High definition fiber tracking in neurosurgery & traumatic brain injury.” Sudhir Pathak, **Timothy Verstynen**, Kevin Jarbo, Walter Schneider, Juan Fernandez-Miranda. *Abst. Cog. Neuro. Soc. 2011*.

“Structural connectivity of high-level visual cortex with high-definition fiber tracking.” J. Pyles, **T. Verstynen**, W. Schneider, and M. Tarr. *Abst. Society for Neuroscience 2010*.

“High-definition fiber tracking of human cortical eye fields.” J. Phillips, S. Pathak, **T. Verstynen**, and W. Schneider. *Abst. Society for Neuroscience 2010*.

“Characterizing the topography of corticospinal pathways with high definition fiber tractography” **T. Verstynen**, K. Jarbo, S. Pathak, J. Phillips, and W. Schneider. *Abst. Human Brain Mapping 2010*.

“Using pulse-oximetry to account for both heart-rate and breathing artifacts in the BOLD signal” **T. Verstynen** and V. Deshpande. *Abst. Human Brain Mapping 2009*.

“Competitive learning predicts the emergence of Bayesian priors in motor planning networks.” **T. Verstynen** and P.N. Sabes. *Abst. Society for Neuroscience 2008*.

“Variability vs. flexibility: How experience can adaptively change motor representations.” **T. Verstynen** and P.N. Sabes. *CSAIL Meeting 2008*.

“Noise or Adaptive Tuning? The role of variability in flexible motor strategies.” **T. Verstynen** and P.N. Sabes. *Abst. Society for Neuroscience 2007*.

“Functional role of inhibitory processes during hand selection.” J. Duque, **T. Verstynen**, and R. B. Ivry. *Abst. Cog. Neuro. Soc. 2007*.

"Different behavior and neural consequences of voluntary and involuntary attention to faces." M. Esterman, J. DeGutis, E. Hazeltine, **T. Verstynen**, A. Landau, L. Robertson, W. Prinzmetal. *Abst. Cog. Neuro. Soc. 2006*.

“Using low-frequency rTMS to suppress BOLD and map functional connectivity.” **T. Verstynen**, B. Pasley, R.B. Ivry. *Abst. Human Brain Mapping 2006*.

“Functional network of precentral motor areas controlling unimanual movements.” **T. Verstynen** and R. B. Ivry. *Abst. Society for Neuroscience 2006*.

"fMRI measurements of the cerebellar response to nonrhythmic movements." J. Schlerf, **T. Verstynen**, R. B. Ivry. *Abst. Society for Neuroscience 2006*.

“Coming Unbound: Disruption of synesthesia with parietal rTMS.” M. Esterman, **T. Verstynen**, R. B. Ivry, L. Robertson. *Abst. Cog. Neuro. Soc. 2005*.

- “Contralateral muscle control predicts the degree of mirror movements: A case report on congenital mirror movements” **T. Verstynen**, R. Spencer, C. Stinear, W. Byblow, J. Diedrichsen, R.B. Ivry. *Abst. Neural Control of Movement 2005*.
- “Action-induced modulation of perceived duration in different sensory modalities.” M. Oliver, **T. Verstynen**, and R.B. Ivry. *Abst. Cog. Neuro. Soc. 2004*.
- “Mechanisms behind TMS-induced response variability in a rhythmic tapping task” T. Konkle, **T. Verstynen**, and R. B. Ivry. *Abst. Society for Neuroscience 2004*.
- “Asymmetries in motor cortex inhibition during bimanual isometric muscle activation” **T. Verstynen**, C.M. Stinear, T. Konkle, R.B. Ivry, and W.D. Byblow. *Abst. Society for Neuroscience 2004*
- “Cerebellar activation during discrete and continuous repetitive tapping movements.” Rebecca M. C. Spencer, **Timothy Verstynen**, Matthew Brett, & Richard B. Ivry. *Abst. Society for Neuroscience 2004*
- “Did I do that? -- Modulating the somatosensory percept through self production.” M. Oliver, **T. Verstynen**, and R.B. Ivry. *Abst. Cog. Neuro. Soc. 2003*.
- "Switching left and right: Cortical regions responsible for visuo-motor remapping." **T. Verstynen**, M. Esterman, A. Le, J. Diedrichsen, and L. Robertson. *Abst. Cog. Neuro. Soc. 2003*.
- “The role of dorsolateral PFC in refreshing just-activated information: a TMS study” B.T. Miller, **T. Verstynen**, C. Raye, K. Mitchell3, M. Johnson, M D’Esposito. *Abst. Society for Neuroscience 2003*
- “Sources of increased timing variability following TMS over motor cortex.” T. Konkle, **T. Verstynen**, J. Diedrichsen, and R. B. Ivry. *Abst. Society for Neuroscience 2003*
- “Predicting the body and the world: The role of the cerebellum and corpus callosum in anticipatory postural adjustments required for bimanual coordination.” J. Diedrichsen, **T. Verstynen**, N. Albert, and R. B. Ivry. *Abst. Society for Neuroscience 2003*
- “The cerebellum and somatosensory perception: A ticklish question.” **T. Verstynen**, J. Diedrichsen, and R.B. Ivry. *Abstr. Cog. Neuro. 2002*.
- “Is an efference copy necessary for a learned anticipatory stabilization response in a bimanual unloading task?” J. Diedrichsen, A. Hon, **T. Verstynen**, and R.B. Ivry. *Abstr. Cog. Neuro. 2002*.
- "Task-dependent asymmetries of human motor cortex activation in right and left-handers" N. Albert, J. Diedrichsen, **T. Verstynen**, E. Hazeltine, and R. B. Ivry. *Abst. Society for Neuroscience 2002*.
- "Investigating the role of the dorsolateral prefrontal cortex in the acquisition and retrieval of motor sequences." **T. Verstynen**, A. Le, J. Diedrichsen, and R. B. Ivry. *Abst. Society for Neuroscience 2002*.
- "Which neural structures govern the anticipatory postural adjustment during unloading?" J. Diedrichsen, **T. Verstynen**, A. Hon, R. B. Ivry and S. Lehman. *Abst. Society for Neuroscience 2002*.

“Neonatal novelty exposure modulates navigational strategies in the Morris Water Maze.” M. Caplan, **T. Verstynen**, and A. Tang. *Abstr. Cog. Neuro.* 2001.

“Hippocampal asymmetry predicts proficiency of dominant paw use in the rat.” **T. Verstynen**, R. Tierney, and A.C. Tang. *Abstr. Cog. Neuro.* 2001.

“The effects of neonatal handling on ‘handedness’ in rats.” **Timothy D. Verstynen** and Akaysha C. Tang. *Abstr. Cog. Neuro.* 2000.

“Neonatal stimulation eliminates a population level left-bias in hippocampal volume.” R. Tierney, **T. Verstynen**, and A. Tang. *Abstr. International Society Developmental Psychobiology* 2000.

“Can mom tell whether you've left home?-- Evidence from maternal observations of the rat.” B. Zou, B. Reeb, **T. Verstynen**, and A. Tang. *Abstr. International Society Developmental Psychobiology* 2000.

“Effects of early experience and maternal care interaction on cognitive development in the rat.” Mathew Pirritano, Jennifer Jones, **Timothy Verstynen**, and Akaysha Tang. *Abstr. Society for Neuroscience*, 1999.

“Neonatal handling induced enhancement in multiple cognitive tasks and its neuroanatomical bases.” Koerner, T. Urbanski, L. Zamora, J. Jones, **T. Verstynen**, and A.C. Tang.. *Abstr. Society for Neuroscience*, 1999.

“Cerebral lateralization and learning.” **T. Verstynen** and A. Tang. *Abstr. Cog. Neuro.* 1999.