Timothy B. Weng

Curriculum Vitae

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tbweng
Prepared March 5, 2018

Education

PhD, Psychology (Cognitive Neuroscience), *The University of Iowa*, Iowa City, IA 2012 – 2018 (expected)
Dissertation: Brain network predictors of exercise behavior change in sedentary older adults: an emotion and decision-making perspective
Advisor: Michelle W. Voss
Committee: Daniel Tranel, Natalie Denburg, Jatin Vaidya, and Ryan LaLumiere

BS, Psychology (Brain & Cognition), *University of Illinois at Urbana-Champaign*, Urbana, IL 2007 – 2011

Technical Expertise

Data analysis, structural/functional magnetic resonance imaging, resting state functional connectivity, software development for fMRI analysis, experimental design, cognitive testing, analysis of saliva biomarkers, psychophysiology

Technologies

Scientific: FSL, AFNI, FreeSurfer, nilearn, Jupyter, E-prime, AcqKnowledge

Cluster computing: Oracle/Sun Grid Engine (SGE)

Version control: git (GitHub)

Programming Languages

Bash, R, LaTeX, MATLAB, Python

Software

Contributions to Open Source Scientific Software

Resting State Repository
Repository of scripts for processing resting-state functional connectivity data
Address: https://github.com/HBClab/RestingState
Role: Developer, Contributor

GE DICOM Converter
Converts DICOMs from GE MR750w scanner into BIDS-compatible NIfTIs
Address: https://github.com/HBClab/GE_dcm_to_nii
Role: Contributor

Additional Research Experience

Laboratory Manager and Research Assistant, *Cognitive Neuroimaging Laboratory*, University of Illinois at Urbana-Champaign, Urbana, IL 2010 – 2012
Advisors: Monica Fabiani and Gabriele Gratton

Research Assistant, *Cross-Modal Plasticity Laboratory*, University of Illinois at Urbana-Champaign, Urbana, IL 2011 – 2012
Advisor: Matthew Dye

Assistant Technical Manager, *Diffusive Optical Imaging Laboratory*, Beckman Institute, Urbana, IL — 2011 – 2012
Advisor: Ed Maclin

Research Assistant, *University of Illinois at Urbana-Champaign*, Urbana, IL, Korol-Gold Laboratory for Learning & Memory — 2010 – 2011
Advisors: Donna Korol

Laboratory Technician, *College of Veterinary Medicine*, Urbana, IL — 2010 – 2011
Supervisors: Lois Hoyer, Dominique Griffon, and Page Fredericks

Laboratory Technician, *Human Immunologic Monitoring Facility*, University of Chicago, Chicago, IL — Summer 2008
Supervisor: Yuanyuan Zha

Publications

Peer-Reviewed

[1] Chaddock-Heyman L, **Weng TB**, Kienzler C, Erickson KI, Voss MW, Drollette ES, Raine LB, Kao SC, Hillman CH, and Kramer AF (jan 2018). Scholastic performance and functional connectivity of brain networks in children. *PLOS ONE*, 13(1):e0190,073. doi:10.1371/journal.pone.0190073.

[2] Voss MW, Clark R, Freedberg M, **Weng T**, and Hazeltine E (mar 2018). Striking a chord with healthy aging: memory system cooperation is related to preserved configural response learning in older adults. *Neurobiology of Aging*, 63:44–53. doi:10.1016/j.neurobiolaging.2017.11.001.

[3] DuBose LE, Voss MW, **Weng TB**, Kent JD, Dubishar KM, Lane-Cordova A, Sigurdsson G, Schmid P, Barlow PB, and Pierce GL (apr 2017). Carotid β-stiffness index is associated with slower processing speed but not working memory or white matter integrity in healthy middle-aged/older adults. *Journal of Applied Physiology*, 122(4):868–876. doi:10.1152/japplphysiol.00769.2016.

[4] **Weng TB**, Pierce GL, Darling WG, Falk D, Magnotta VA, and Voss MW (mar 2017). The Acute Effects of Aerobic Exercise on the Functional Connectivity of Human Brain Networks. *Brain Plasticity*, 2(2):171–190. doi:10.3233/BPL-160039.

[5] Voss MW, **Weng TB**, Burzynska AZ, Wong CN, Cooke GE, Clark R, Fanning J, Awick E, Gothe NP, Olson EA, McAuley E, and Kramer AF (may 2016). Fitness, but not physical activity, is related to functional integrity of brain networks associated with aging. *NeuroImage*, 131:113–125. doi:10.1016/j.neuroimage.2015.10.044.

[6] **Weng TB**, Pierce GL, Darling WG, and Voss MW (jul 2015). Differential effects of acute exercise on distinct aspects of executive function. *Medicine and Science in Sports and Exercise*, 47(7):1460–1469. doi:10.1249/MSS.0000000000000542.

[7] Voss MW, Carr LJ, Clark R, and **Weng T** (mar 2014). Revenge of the "sit" II: Does lifestyle impact neuronal and cognitive health through distinct mechanisms associated with sedentary behavior and physical activity? *Mental Health and Physical Activity*, 7(1):9–24. doi:10.1016/j.mhpa.2014.01.001.

Other Published Work

[1] **Weng TB** and Voss MW (2016). Active Voice: Aerobic Exercise Targets Specific Higher-order Brain Functions. *Invited highlighted commentary for the American College of Sports Medicine Bulletin.*

Submitted or In Preparation

[1] Pontifex, MB, Gwizdala, KL, **Weng, TB**, Zhu, DC, and Voss, MW (*submitted*). Cerebral Blood Flow is Not Modulated Following Acute Aerobic Exercise in Preadolescent Children.

[2] Voss, MW, Sutterer, MJ, **Weng, TB**, Burzynska, AZ, Fanning, J, Awick, E, Gothe, N, McAuley, E, and Kramer, AF (*submitted*). Nutritional supplementation boosts aerobic exercise effects on functional brain systems.

[3] **Weng, TB**, Wong, C, Burzynska, AZ, Chaddock-Heyman, L, Monti, J, McAuley, E, Kramer, AF, and Voss, MW (*in prep*). Clarifying concepts of functional network disruption with aging: common and distinct roles of network competition and segregation in cognitive control.

[4] Sutterer, MJ, **Weng, TB**, Wong, C, Burzynska, AZ, Chaddock-Heyman, L, Monti, J, McAuley, E, Kramer, AF, and Voss, MW (*in prep*). The role of the salience network in dynamic network interactions and its relevance for aging-related differences in cognitive control.

[5] Guzman-Velez, E, **Weng, TB**, Cooke, GE, Burzynska, AZ, McAuley, E, Kramer, AF, and Voss, MW (*in prep*). Greater distribution of executive control networks supports cognitive reserve in bilingual older adults.

Presentations

Selected Conference Posters

[1] **Weng TB**, Clark R, Wharff C, Reist L, Sigurdsson G, Schmid P, Kirschbaum C, Magnotta VA, Pierce GL, and Voss MW (2018). Psychophysiological markers underlying the affective response to acute exercise in older adults. In *Cognitive Aging Conference*. Atlanta, GA.

[2] Clark R, **Weng TB**, Wharff C, Reist L, DuBose LE, Darling WG, Schmid P, Sigurdsson G, Magnotta VA, Pierce GL, and Voss MW (2017). Physical Activity and Aerobic Fitness Related to Episodic Associative Learning and Hippocampal Volume in Healthy Older Adults. In *Symposium on Physical Exercise and Brain Health*. Irvine, CA.

[3] Gwizdala KL, **Weng TB**, Voss MW, and Pontifex MB (2017). The Effect Of Single Bouts Of Exercise On Cerebral Blood Flow In Preadolescent Children. In *North American Society for the Psychology of Sport and Physical Activity*. San Diego, CA.

[4] DuBose LE, Voss MW, **Weng TB**, Dubishar KM, Lane-Cordova A, Sigurdsson G, Schmid P, and Pierce GL (2016). Higher Aerobic Fitness Is Associated with Lower Cerebrovascular Reactivity in Older Adults Independent of Age and Aortic Stiffness. In *Experimental Biology*. San Diego, CA.

[5] **Weng TB**, Pierce GL, Darling WG, Falk D, Magnotta VA, and Voss MW (2016). Toward a Hedonic Theory of Exercise Behaviors: Acute Exercise Selectively Increases the Functional Connectivity of Reward and Affective Brain Systems in Older Adults. In *Cognitive Neuroscience Society Annual Meeting*. New York, NY.

[6] DuBose LE, Voss MW, **Weng TB**, Dubishar KM, Lane-Cordova A, Swift M, Sigurdsson G, Schmid P, and Pierce GL (2015). Lower carotid compliance and greater carotid β-stiffness index is associated with slower processing speed and reduced working memory performance in middle-aged/older healthy adults. In *North American Artery Conference*. Chicago, IL.

[7] **Weng TB**, Guzman-Velez E, Cooke GE, Herrel S, Burzynska AZ, Wong CN, McAuley E, Kramer AF, Tranel D, and Voss MW (2015). Greater Distribution of Executive Control Networks Supports Cognitive Reserve in Bilingual Older Adults. In *Society for Neuroscience*. Chicago, IL.

[8] **Weng TB**, Wong CN, Burzynska AZ, Chaddock-Heyman L, Monti JM, McAuley E, Kramer AF, and Voss MW (2015). Age-related de-differentiation of functional brain networks at rest is associated with stability of executive functions. In *Cognitive Neuroscience Society Annual Meeting*. San Francisco, CA.

[9] Dubose LE, **Weng TB**, Dubishar K, Mani M, Voss MW, and Pierce GL (dec 2014). Higher aortic stiffness and carotid systolic and pulse pressure are selectively associated with lower white matter integrity in the genu and frontal cortex in older healthy adults. In *Artery Research*, volume 8, page 174. doi:10.1016/j.artres.2014.09.028.

[10] **Weng TB**, Pierce GL, Darling WG, Falk D, Magnotta VA, and Voss MW (2014). Acute increases in functional connectivity following physical exercise are associated with cerebrovascular reactivity. In *Fourth Biennial Conference on Resting State/Brain Connectivity*. Boston, MA.

[11] **Weng TB**, Pierce GL, Darling WG, Magnotta V, and Voss MW (2014). The acute effects of exercise on large-scale networks of the human aging brain: insights into the protective role of exercise on the brain. In *Cognitive Neuroscience Society Annual Meeting*. Boston, MA.

[12] **Weng TB**, Wong CN, Burzynska AZ, Chaddock-Heyman L, Monti J, McAuley E, Kramer AF, and Voss MW (2014). Age-related differences in executive function are associated with the differentiation of functional brain networks at rest. In *Cognitive Aging Conference*. Atlanta, GA.

[13] Sutterer M, Voss MW, Mani M, Wong CN, Cooke GE, Belfi A, **Weng TB**, Tranel D, McAuley E, and Kramer AF (2013). Age-related differences in anterior cingulate-insula connectivity are associated with the fronto-executive but not emotional saliency network. In *Cognitive Neuroscience Society Annual Meeting*. San Francisco, CA.

Oral Presentations

[1] **Weng TB** (2015). Cognitive affective neuroscience of physical activity and exercise behaviors in older adults. In *Department of Psychology Annual Data Blitz*. Iowa City, IA.

[2] **Weng TB** (2014). Differential effects of acute exercise on cognitive processes. In *16th Annual James F. Jakobsen Graduate Conference*. Iowa City, IA.

[3] **Weng TB** (2014). The acute effects of aerobic exercise on functional networks of the aging human brain. In *Department of Psychology Annual Data Blitz*. Iowa City, IA.

[4] **Weng TB** (2014). The acute effects of exercise on functional networks of the aging human brain. In *Benton Neuropsychology Laboratory Meeting*. Iowa City, IA.

[5] **Weng TB** (2014). The acute effects of exercise on the brain and cognition. In *Department of Psychology Graduate Research Seminar*. Iowa City, IA.

[6] **Weng TB** (2013). Examining the acute neurovascular effects of exercise with the arterial spin labeling MRI technique. In *Translational Vascular Physiology Laboratory Meeting*. Iowa City, IA.

[7] **Weng TB** (2013). The acute effects of exercise as a method of investigating the effects of exercise on the brain and cognition. In *Behavioral & Cognitive Neuroscience Seminar Series*. Iowa City, IA.

[8] **Weng TB** (2013). The glass half full: plasticity and cognitive aging. In *15th Annual James F. Jakobsen Graduate Conference*. Iowa City, IA.

[9] **Weng TB** (2011). Teaching an old dog new tricks: The role of practice and inhibitory control on working memory in older adult. In *Division of Brain & Cognition Seminar Series*. Urbana, IL.

Grants

Graduate & Professional Student Government Research Grant, $1000,The University of Iowa 2017

Awards and Fellowships

Elected Trainee for Institutional T32-GM108540-02 (NIH-NIGMS) "Mechanisms of Health and Disease at the Behavioral-Biomedical Interface," The University of Iowa 2014 – present

Graduate College Summer Research Fellowship, The University of Iowa Summer 2017

Post-Comprehensive Research Award, The University of Iowa Spring 2017

Travel Awards (4) 2014 – 2015

Best Data Blitz Presentation 2014

Graduate College Scholarly Excellence Fellowship, The University of Iowa 2014

Honorable Mention, NSF Graduate Research Fellowship 2014

Interdisciplinary Research Fellowship, The University of Iowa 2014

Dr. Jordan L. Cohen Prize for Excellence in Aging Research, The University of Iowa 2012

Dr. Michael G.H. Coles Award for Excellence in Cognitive Neuroscience Research, University of Illinois 2011

Departmental Distinction, Dept of Psychology, University of Illinois 2011

First Place Poster Award, Annual Biology Research Poster Competition, University of Illinois 2011

Teaching Experience

Teaching Fellow, *The University of Iowa*, Iowa City, IA Fall 2014
PSY 6280 Structural & Functional MRI Methods and Applications (graduate course)

Teaching Assistant, *The University of Iowa*, Iowa City, IA Fall 2013
PSY 1001 Elementary Psychology

Service

Assistance with Peer Review, *Cerebral Cortex (2015), Brain Connectivity (2014), Medicine & Science in Sports & Exercise (2014, 2017)*

Executive Committee Student Representative, *Behavioral-Biomedical Interface Training Program*, The University of Iowa 2015 – 2016

Graduate Student Advisory Committee Member, *Department of Psychological & Brain Sciences*, The University of Iowa 2014 – 2015

Conference Co-Organizer, *Modern Brains: Literary Studies and the Cognitive Sciences*, University of Illinois 2012

Mentor, *Project NEURON: Outreach for Underrepresented Students*, University of Illinois 2011

Organizer, *Cognitive Neuroimaging Laboratory Undergraduate Journal Club*, University of Illinois 2011

Professional Memberships

Society for Neuroscience
Cognitive Neuroscience Society

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