Rachael D. Seidler, Ph.D.

Full Professor
Department of Applied Physiology & Kinesiology
University of Florida
1864 Stadium Road, Room 100 Florida Gym
Gainesville, FL 32611
Phone: (352) 294-1722
rachaelseidler@ufl.edu

Education

Post-Doc.	University of Minnesota/VAMC	2000-01
Ph.D.	Arizona State University	1999
M.S.	Arizona State University	1995
B.S.	University of Oregon	1992

Professional Experience

Full Professor with tenure, Department of Applied Physiology and Kinesiology, University of Florida, June 2017-present

Full Professor with tenure, Department of Psychology and School of Kinesiology (joint), University of Michigan, 2014-2017

Associate Director, Neuroscience Graduate Program, University of Michigan, 2011-2014

Associate Professor with tenure, Department of Psychology and School of Kinesiology (joint), University of Michigan, 2009-present

Assistant Professor, Department of Psychology and School of Kinesiology (joint), University of Michigan, 2003-2009

Assistant Research Scientist, Division of Kinesiology, University of Michigan, 2001-2003

Postdoctoral Associate, Brain Sciences Center, Minneapolis VAMC & Department of Neuroscience, University of Minnesota, 2000-2001

Research Associate, Arizona State University, 1999-2000

NASA Graduate Student Researcher, Arizona State University and Johnson Space Center, 1997-1999

Research Assistantship, Arizona State University, 1994-1997

Research Technician, Dynamic Spinal Analysis, 1994-1995

Research Assistantship, Arizona State University, 1992-1994

Intern, Nike Sport Research Laboratory, 1993

Additional Affiliations

Neuroscience Graduate Program Faculty, University of Michigan, 2002–2017

LIFE Program Faculty, 2003-present (The Life Course: Evolutionary and Ontogenetic Dynamics, a collaborative graduate program between Max Planck Institute for Human Development, Berlin; Humboldt University, Berlin; Free University of Berlin; University of Virginia, and University of Michigan)

Institute of Gerontology Faculty, University of Michigan, 2003-2017

Peer-Reviewed Journal Publications

([a]undergraduate student, [b]graduate student, [c]postdoctoral associate)

102. [c]Koppelmans V, Bloomberg JJ, De Dios YE, Wood SJ, Reuter-Lorenz PA, Kofman IS, Riascos R, Mulavara AP, & Seidler RD (in press). Brain plasticity and sensorimotor deterioration as a function of 70 days head down tilt bed rest. *PLoS ONE*.

101. Seidler RD & Carson RG (in press). Sensorimotor learning: neurocognitive mechanisms and individual differences. *J NeuroEngineering & Rehabil*.
100. [c]Koppelmans V, Pasternak O, Bloomberg JJ, De Dios YE, Wood SJ, Riascos R, Reuter-Lorenz PA, Kofman IS, Mulavara AP, & Seidler RD (in press). Intracranial fluid redistribution but no white matter microstructural changes during a spaceflight analog. *Scientific Reports*.
99. Cheni G, [b]Wright ML, Chou KL, Seidler RD & Patil PG (in press). Bilateral subthalamic nucleus stimulation exceeds unilateral in dual-task Parkinsonian gait. *Parkinsonism and Related Disorders*.
98. [c]Kopplemans V, [c]Hoogendam YY, [b]Hirsiger S, Merillat S, Jancke L, & Seidler RD (in press). Regional cerebellar volumetric correlates of manual motor and cognitive function. *Brain Structure and Function*.
97. [b]Noohi F, Kinnaird C, De Dios Y, Kofman I, Wood S, Bloomberg J, Mulavara A, & Seidler RD (2017). Functional brain activation in response to a clinical vestibular test correlates with balance. *Frontiers in Systems Neuroscience* 11:11.
96. Seidler RD, Gluskin B, & [b]Greeley B (2017). Right prefrontal cortex transcranial direct current stimulation enhances multi-day savings in sensorimotor adaptation. *Journal of Neurophysiology* 117(1): 429-435.
95. [b]Greeley B & Seidler RD (2017). Mood induction effects on motor sequence learning and stop signal reaction time. *Experimental Brain Research* 235(1): 41-56.
94. [c]Koppelmans V, Bloomberg J, Mulavara AP, & Seidler RD (2016). Brain structural plasticity with spaceflight. *npj Microgravity* 2:2 doi:10.1038/s41526-016-0001-9
93. [c]Ruitenberg ML, Duthoo W, Santens P, Seidler RD, Notebaert W, & Abrahamse EL (2016). Sequence learning in Parkinson's disease: focusing on the action dynamics through mouse tracking. *Neuropsychologia* 93(Pt A): 30-39.
92. [c]Yuan P, [c]Kopplemans V, Reuter-Lorenz P, De Dios Y, Gadd N, Wood S, Riascos R, Kofman I, Bloomberg J, Mulavara A, & Seidler RD (2016). Increased brain activation for dual tasking with 70-days head-down bed rest. *Frontiers in Systems Neuroscience*.
91. [b]Cassady K, [c]Kopplemans V, Reuter-Lorenz P, De Dios Y, Gadd N, Wood S, Riascos R, Kofman I, Bloomberg J, Mulavara A, & Seidler RD (2016). Effects of a spaceflight analog environment on brain connectivity. *Neuroimage* 141:18-30.
90. [b]Noohi F, Boyden NB, Kwak Y, Humfleet J, Muller MLTM, Bohnen NI, Seidler RD (2016). Interactive effects of age and multi-gene profile on motor learning and sensorimotor adaptation. *Neuropsychologia* 84: 222-234.
89. [b]Festini SB, Preston SP, Reuter-Lorenz PA, & Seidler RD (2016). Emotion and reward are dissociable from error during motor learning. *Experimental Brain Research* 234: 1385-1394.
88. [b]Hirsiger S, [c]Koppelmans V, Merillat S, Liem F, [c]Erdeniz B, Seidler RD, Jancke L (2016). Different associations between cognition and motor behavior and cingulum bundle's structural and functional connectivity in healthy aging. *Human Brain Mapping* 37: 855-867.
87. [c]Hoogendam YY, [c]Koppelmans V, Ikram A, Boogerd W, Seynaeve C, Seidler RD, Breteler MMB, Van der Geest JN, & Schagen SB (2015). Late effects of adjuvant chemotherapy for breast cancer on fine motor function. *Psycho-Oncology* 24(12): 1799-1807.
86. [c]Koppelmans V, Mulavara AP, [c]Yuan P, [b]Cassady KE, [b]Cooke KA, Wood SJ, Reuter-Lorenz PA, De Dios YE, Stepanyan V, Szecsy DL, Gadd NE, Kofman IS, Scott JM, Downs ME, Bloomberg JJ, Ploutz-Snyder L, & Seidler RD (2015). Exercise as potential countermeasure for the effects of 70 days of bed rest on cognitive and sensorimotor performance. *Frontiers in Systems Neuroscience* 9:121.

85. Seidler RD, Mulavara AP, Bloomberg JJ & Peters BT (2015). Individual predictors of sensorimotor adaptability. *Frontiers in Systems Neuroscience* 9:100.
84. [b]Festini SB, [b]Bernard JA, [b]Kwak Y, Peltier S, Bohnen NI, Muller MLTM, Dayalu P & Seidler RD (2015). Altered cerebellar connectivity in Parkinson's patients on and off L-DOPA medication. *Frontiers in Human Neuroscience* 9:215.
83. [c]Koppelmans V, [b]Hirsiger S, Merillat S, Jancke L, & Seidler RD (2015). Cerebellar gray and white matter volume and their relation with age and manual motor performance in healthy older adults. *Human Brain Mapping* 36(6): 2352-2363.
82. Seidler RD, [c]Erdeniz B, [c]Koppelmans V, [b]Hirsiger S, Merillat S, Jancke L (2015). Associations between age, motor function, and resting state sensorimotor network connectivity in healthy older adults. *Neuroimage* 108: 47-59.
81. [b]Kurani, AJ, Seidler, RD, Burciu RG, Comella CL, Corcos DM, Okun MS, Mackinnon CD, Vaillancourt DE (2015). Subthalamic nucleus – sensorimotor cortex functional connectivity in de novo and moderate Parkinson's disease. *Neurobiology of Aging* 36: 462-469.
80. [b]Bernard JA, Peltier SJ, Benson BL, [b]Wiggins JL, Jaeggi SM, Buschkuehl M, Jonides J, Monk CS & Seidler RD (2014). Dissociable functional networks of the human dentate nucleus. *Cerebral Cortex* 24: 2151-2159.
79. Bo J, [b]Lee CM,[b]Kwak Y,Peltier SJ, [b]Bernard JA, Buschkuehl M, Jaeggi SM, Wiggin JL, Jonides J, Monk CS & Seidler RD (2014). Lifespan changes in cortico-striatal resting state connectivity. *Brain Connectivity* 4(3): 166-180.
78. [b]Bernard JA and Seidler RD (2014). Moving forward: Age effects on the cerebellum underlie cognitive and motor declines. *Neuroscience and Biobehavioral Reviews* 42: 193-207.
77. [b]Kim D, [b]Brandon BJ, Gillespie RB, & Seidler RD (2014). Role of haptic cues in motor learning. *Frontiers in Human Neuroscience* 8:130.
76. [b]Noohi F, [b]Boyden B, [b]Kwak Y, Humfleet J, Burke DT, Müller MLTM, Bohnen NB, & Seidler RD (2014). Association of COMT *val158met* and DRD2 *G > T* genetic polymorphisms with individual differences in motor learning and performance in female young adults. *Journal of Neurophysiology* 111(3): 628-640.
75. Vaillancourt DE, Schonfeld D, [b]Kwak Y, Bohnen N, & Seidler, RD (2013). Dopamine overdose hypothesis: evidence and clinical implications. *Movement Disorders* 28(14): 1920-1929.
74. [c]Koppelmans V, [c]Erdeniz B, De Dios YE, Wood SJ, Reuter-Lorenz PA, Kofman I, Bloomberg JJ, Mulavara AP and Seidler RD (2013). Study Protocol to Examine the Effects of Spaceflight and a Spaceflight Analog on Neurocognitive Performance: Extent, Longevity, and Neural Bases. *BMC Neurology* 13(1): 205.
73. Seidler RD, Meehan SK (2013). Introduction to the special topic: a multidisciplinary approach to motor learning and sensorimotor adaptation. *Frontiers in Human Neuroscience* 7: 543.
72. [c]Miller NS, [b]Kwak Y, Bohnen NI, Muller MTLM, Dayalu P, & Seidler RD (2013). The pattern of nigrostriatal dopaminergic denervation explains sensorimotor synchronization accuracy in Parkinson's disease. *Behavioural Brain Research* 257: 100-110.
71. [c]Erdeniz B, Rohe T, Done J, & Seidler RD (2013). A simple solution for model comparison in BOLD imaging: the special case of reward prediction error and reward outcomes. *Frontiers in Brain Imaging Methods* 7:116.
70. [b]Kwak Y, Bohnen N, Muller MLTM, Dayalu P, & Seidler RD (2013). Striatal denervation pattern predicts levodopa effects on sequence learning in Parkinson's disease. *Journal of Motor Behavior* 45: 423-429.

69. [b]Bernard JA, Peltier SJ, Benson BL, [b]Wiggins JL, Jaeggi SM, Buschkuehl M, Jonides J, Monk CS & Seidler RD (2013). Disrupted cortico-cerebellar connectivity in older adults. *Neuroimage* 83: 103-119.
68. [b]Bernard JA & Seidler RD (2013). Relationships between regional cerebellar volume and sensorimotor and cognitive function in young and older adults. *Cerebellum* 12: 721-737.
67. [b]Kwak Y, Bohnen NI, Muller ML, Dayalu P, Burke DT, & Seidler RD (2013). Task-dependent interactions between Dopamine D2 receptor polymorphisms and L-DOPA in patients with Parkinson's disease. *Behavioural Brain Research* 245: 128-136.
66. [b]Bernard JA & Seidler RD (2013). Cerebellar contributions to visuomotor adaptation and motor sequence learning: an ALE meta-analysis. *Frontiers in Human Neuroscience* 7:27.
65. [a]Szabo, A., [b]Bangert, A. S., & Seidler, R. D. (2013). Physical activity is related to timing performance in older adults. *Aging, Neuropsychology, and Cognition* 20(3): 356-369.
64. [b]Fling, B. W., Benson, B. L., & Seidler, R. D. (2013). Transcallosal sensorimotor fiber tract structure-function relationships. *Human Brain Mapping,* 34(2): 384-395.
63. Seidler, R. D. (2012). Neuroplasticity in middle age: an ecologically valid approach. Peer-reviewed commentary on Bezzola et al. (2012). *Frontiers in Human Neuroscience*.
62. [b]Fling, B. W. & Seidler, R. D. (2012). Fundamental differences in callosal structure, neurophysiologic function, and bimanual control in young and older adults. *Cerebral Cortex,* 22: 2643-2652. **Brett Fling received the American Academy of Kinesiology's graduate student writing award for this paper.
61. Seidler RD, [c]Bo J, & [b]Anguera JA (2012). Neurocognitive contributions to motor skill learning: the role of working memory. Invited paper for a special issue of the *Journal of Motor Behavior* dedicated to papers from the Neural Control of Movement Society's 2011 satellite meeting on Motor Learning. *Journal of Motor Behavior*, 44(6): 445-453.
60. [b]Bernard, J. A. & Seidler, R. D. (2012). Hand dominance and age have interactive effects on motor cortical representations. *PLoS One*, 7(9):e45443.
59. [c]Bo, J, Jennett, S, & Seidler, R. D. (2012). Differential working memory correlates for implicit sequence performance in young and older adults. *Experimental Brain Research*, 221(4):467-477.
58. [b]Bernard J. A., Seidler R. D., Benson B. L., [b]Wiggins J. L., [c]Jaeggi S. M., [c]Buschkuehl M., Jonides J., Monk C. S. & Peltier S. J. (2012). Resting state cortico-cerebellar functional connectivity networks: A comparison of anatomical and self-organizing map approaches. *Frontiers in Neuroanatomy*, 6:31.
57. [b]Fling, B. W., [b]Kwak, Y., Peltier, S. J., & Seidler, R. D. (2012). Differential relationships between transcallosal structural and functional connectivity in young and older adults. *Neurobiology of Aging,* 33:2521-2526.
56. [b]Kwak Y, Peltier SJ, Muller MLTM, Bohnen N, Dayalu P, & Seidler RD (2012). L-DOPA changes spontaneous low-frequency BOLD signal oscillations in Parkinson's disease: a resting state fMRI study. *Frontiers in Systems Neuroscience*, 6:52.
55. [b]Bernard, J. A. & Seidler, R. D. (2012). Evidence for motor cortex dedifferentiation in older adults. *Neurobiology of Aging,* 33(9):1890-1899.
54. [b]Kwak Y, Peltier SJ, Muller MLTM, Bohnen N, Dayalu P, & Seidler RD (2012). L-DOPA impairs ventral striatum recruitment during motor sequence learning in Parkinson's disease. *Behavioural Brain Research*, 230(1):116-124.
53. [a]Wang, J. M., Seidler, R. D., [b]Hall, J. L., & Preston, S. D. (2012). Beyond buying: The neural substrates of material consumption. *Neuropsychologia* 50(5):939-948.
52. [b]Anguera JA, [b]Bernard JA, [c]Jaeggi SM, [c]Buschkuehl M, [a]Benson BL, Jennett S, Humfleet J, Reuter-Lorenz PA, Jonides J, & Seidler RD (2012). The effects of working memory resource depletion and training on sensorimotor adaptation. *Behavioural Brain Research,* 228: 107-115.

51. [b]Fling, B. W. & Seidler, R. D. (2012). Task-dependent effects of interhemispheric inhibition on motor control. *Behavioural Brain Research,* 226: 211-217.
50. [c]Bo, J., Peltier, S. J., Noll, D. C., & Seidler, R. D. (2011). Age differences in symbolic representations of motor sequence learning. *Neuroscience Letters* 504: 68-72.
49. [c]Bo, J., Jennett, S. & Seidler, R. D. (2011). Working memory capacity correlates with implicit serial reaction time task performance. *Experimental Brain Research,* 214:73-81.
48. [c]Langan, J. & Seidler, R. D. (2011). Cognitive contributions to motor learning and transfer of learning in young and older adults. *Behavioural Brain Research,* 225:160-168.
47. [b]Fling, B. W., [a]Chapekis, M., Reuter-Lorenz, P. A., [b]Anguera, J. A., [c]Bo, J., [c]Langan, J., Welsh, R. C., & Seidler, R. D. (2011). Age differences in callosal contributions to cognitive processes. *Neuropsychologia,* 49:2564-2569.
46. [a]Benson, B. L., [b]Anguera, J. A., & Seidler, R. D. (2011). An explicit spatial strategy improves performance but impairs sensorimotor adaptation. *Journal of Neurophysiology*, 105(6):2843-2851.
45. [b]Fling, B. W., [b]Walsh, C. M., [b]Bangert, A. S., Reuter-Lorenz, P. A., Welsh, R. C., & Seidler, R. D. (2011). Differential callosal contributions to bimanual control in young and older adults. *Journal of Cognitive Neuroscience*, 23(9):2151-2165.
44. [b]Fling, B. W., Bo, J., Peltier, S. J., Welsh, R. C., & Seidler, R. D. (2011). Age differences in interhemispheric interactions: callosal structure, physiological function, and behavior. *Frontiers in Neuroscience* (Tier 2 invited paper), 5:38.
43. [b]Bernard, J. A., Taylor, S. F., & Seidler, R. D. (2011). Relationships between ipsilateral motor representations, interhemispheric interactions, and handedness. *Journal of Neurophysiology,* 105(1):88-99.
42. [b]Bangert, A. S., Reuter-Lorenz, P. A., & Seidler, R. D. (2011). Dissecting the clock: Mechanisms of timing across tasks and intervals. *Acta Psychologica,* 136(1):20-34.
41. [c]Bo, J., Peltier, S., Noll, D. & Seidler, R. D. (2011). Symbolic representations in motor sequence learning. *Neuroimage,* 54(1):417-426.
40. [b]Anguera, J. A., Reuter-Lorenz, PA., Willingham, D. T., & Seidler, R. D. (2011). Failure to engage spatial working memory contributes to age-related declines in visuomotor learning. *Journal of Cognitive Neuroscience*, 23(1):11-25.
39. [c]Jelsone-Swain, LM, [b]Fling, B. W., Seidler, RD, Hovatter, R, Gruis, K, Welsh, RC (2010). Reduced interhemispheric functional connectivity in the motor cortex during rest in limb-onset amyotrophic lateral sclerosis. *Frontiers in Systems Neuroscience,* 4:158.
38. [b]Kwak Y, Peltier SJ, Muller MLTM, Bohnen N, Dayalu P, Seidler RD (2010). Altered resting state cortico-striatal connectivity in mild to moderate stage Parkinson's disease. *Frontiers in Systems Neuroscience,* 4:143.
37. [c]Langan, J., Peltier S., [c]Bo, J., [b]Fling, B. W., Welsh, R. C., & Seidler, R.D. (2010). Functional implications of age differences in motor system connectivity. *Frontiers in Systems Neuroscience*. 4:17.
36. Biswal, B. B., Mennes, M., Zuo, X., Gohel, S., Kelly, C., Smith, S. M., Beckmann, C. F., Adelstein, J. S., Buckner, R. L., Colcombe, S., Dogonowski, A., Ernst, M., Fair, D., Hampson, M., Hoptman, M. J., Hyde, J. S., Kiviniemi, V. J., Kötter, R., Li, S., Lin, C., Lowe, M. J., Mackay, C., Madden, D. J., Madsen, K. H., Margulies, D. S., Mayberg, H. S., McMahon, K., Monk, C. S., Mostofsky, S. H., Nagel, B. J., Pekar, J. J., Peltier, S. J., Petersen, S. E., Riedl, V., Rombouts, S. A., Rypma, B., Schlaggar, B. L., Seidler, R. D., Siegle, G. J., Sorg, C., Teng, G., Veijola, J., Villringer, A., Walter, M., Wang, L., Weng, X., Whitfield-Gabrieli, S., Williamson, P., Windischberger, C., Zang, Y., Zhang, H., Castellanos, F. X., Milham, M. P. (2010). Towards discovery science of human brain function. *Proceedings of the National Academy of Sciences*, 107(10):4734-4739.

35. [c]Bo, J. & Seidler, R. D. (2010). Spatial and symbolic sequence learning in young and older adults. *Experimental Brain Research*, 201(4):837.
34. [b]Anguera, J. A., Reuter-Lorenz, P.A., Willingham, D.T., & Seidler, R.D. (2010). Contributions of spatial working memory to visuomotor learning. *Journal of Cognitive Neuroscience,* 22(9):1917-1930.
33. Seidler, R. D., [b]Bernard, J. A., [b]Burutolu, T. B., [b]Fling, B. W., [b]Gordon, M. T., [b]Gwin, J. T., [b]Kwak, Y., and [b]Lipps, D. B. (2010). Motor Control and Aging: Links to Age-Related Brain Structural, Functional, and Biochemical Effects. *Neuroscience and Biobehavioral Reviews*, 34(5):721-733.
32. [b]Bangert, A. S., Reuter-Lorenz, P. A., [b]Quinn-Walsh, C. M., [a]Boonin, A., & Seidler, R. D. (2010). Bimanual coordination and aging: Neurobehavioral implications. *Neuropsychologia*, 48:1165-1170.
31. [b]Kwak, Y., Muller, M. L. T. M., Bohnen, N. I., Dayalu, P., & Seidler, R. D. (2010). Effect of dopaminergic medications on the time course of explicit motor sequence learning in Parkinson's disease. *Journal of Neurophysiology*, 103(2):942-949.
30. Seidler, R. D. (2010). Neural correlates of motor learning, transfer of learning, and learning to learn. *Exercise and Sport Sciences Reviews*, 38(1):3-9.
29. Lustig, C., Shah, P., Seidler, R. D., & Reuter-Lorenz, P. (2009). Aging, training, and the brain: A review and future directions. *Neuropsychology Review*, 19(4):504-522.
28. [c]Bo, J., Borza, V. & Seidler, R. D. (2009). Age-related declines in visuospatial working memory correlate with deficits in explicit motor sequence learning. *Journal of Neurophysiology*, 102:2744-2754.
27. [b]Anguera, J. A., Seidler, R. D., & Gehring, W. J. (2009). Changes in performance monitoring during motor learning. *Journal of Neurophysiology*, 102(3):1868-1879.
26. [c]Bo, J. & Seidler, R. D. (2009). Visuospatial working memory capacity predicts the organization of acquired explicit motor sequences. *Journal of Neurophysiology*, 101(6):3116-25.
25. [a]Chase, C. & Seidler, R. (2008). Direction and degree of handedness affect intermanual transfer of skill learning. *Experimental Brain Research*, 190:317-328.
24. Seidler, R. D. & Noll, D. C. (2008). Neuroanatomical correlates of motor acquisition and motor transfer. *Journal of Neurophysiology*, 99:1836-1845.
23. [b]Anguera, J.A., [a]Russell, C.A., Noll, D.C., & Seidler, R.D. (2007). Neural correlates associated with intermanual transfer of sensorimotor adaptation. *Brain Research*, 1185:136-151.
22. Seidler, R. D. (2007). Older adults can learn to learn new motor skills. *Behavioural Brain Research* 183:118-122.
21. Seidler, R. D. (2007). Aging affects motor learning but not savings at transfer of learning. *Learning & Memory* 14:17-21.
20. Seidler, R. D., Tuite, P., & Ashe, J. (2007). Selective impairments in implicit learning in Parkinson's Disease. *Brain Research* 1137:104-110.
19. Seidler, R. D., Noll, D. C., & Chintalapati, P. (2006). Bilateral basal ganglia activation associated with sensorimotor adaptation. *Experimental Brain Research* 175:544-555.
18. Seidler, R. D. (2006). Differential effects of age on sequence learning and sensorimotor adaptation. *Brain Research Bulletin* 70:337-346.
17. Seidler, R. D., Purushotham, A., Kim, S., Willingham, D., Ugurbil, K. & Ashe, J. (2005). Neural correlates of encoding and expression in implicit sequence learning. *Experimental Brain Research* 165:114-124.
16. Seidler, R. D. (2005). Differential transfer processes in incremental visuomotor adaptation. *Motor Control* 9:40-58.
15. Seidler, R. D., Noll, D. C., & Thiers, G. (2004). Feedforward and feedback processes in motor control. *NeuroImage*, 22(4):1775-1783.

14. Seidler, R. D. (2004). Multiple motor learning experiences enhance motor adaptability. *Journal of Cognitive Neuroscience* 16:65-73.
13. Stancak, A., Cohen, E., Seidler, R. D., Duong, T. Q., & Kim, S. (2003). The size of corpus callosum and the functional activation of motor cortical areas in bimanual and unimanual movements. *Cerebral Cortex*, 13:475-485.
12. Seidler, R. D., Purushotham, A., Kim, S., Willingham, D., Ugurbil, K. & Ashe, J. (2002). Cerebellum activation associated with performance change but not motor learning. *Science*, 296:2043-2046.
11. Seidler, R. D., Alberts, J. L., & Stelmach, G. E. (2002). Changes in multi-joint performance with age. *Motor Control*, 6:19-31.
10. Ketcham, C. J., Seidler, R. D., van Gemmert, A. W., & Stelmach, G. E. (2002). Age-related kinematic differences as influenced by task difficulty, target size, and movement amplitude. *Journal of Gerontology: Psychological Sciences,* 57:54-64.
9. Seidler, R. D., Alberts, J. L., & Stelmach, G. E. (2001). Multi-joint movement control in Parkinson's disease. *Experimental Brain Research*, 140(3):335-344.
8. Seidler, R. D., Bloomberg J. J., & Stelmach, G. E. (2001). Patterns of transfer of adaptation among body segments. *Behavioural Brain Research,* 122:145-157.
7. Seidler, R. D., Bloomberg, J. J., & Stelmach, G. E. (2001). Context-specific arm pointing adaptation. *Behavioural Brain Research*, 119(2):155-166.
6. Seidler R. D. & Stelmach, G. E. (2000). Trunk assisted prehension: Specification of body segments with imposed temporal constraints. *Journal of Motor Behavior*, 32:379-389.
5. Ketcham, C. J., Dounskaia, N., Seidler, R. D. & Stelmach, G. E. (2000). Multijoint control is compromised in Parkinson's Disease Patients. *Journal of Human Kinetics,* 4 (supplement):85-95.
4. Seidler-Dobrin, R. D., He, J., & Stelmach, G. E. (1998). Coactivation to reduce variability in the elderly. *Motor Control*, 2:314-330.
3. Seidler-Dobrin, R. D. & Stelmach G. E. (1998). Persistence in visual feedback control by the elderly. *Experimental Brain Research*, 119:467-474.
2. Seidler, R. D. & Martin, P. E. (1997). The effects of short term balance training on the postural control of older adults. *Gait and Posture*, 6(3):224-236.
1. Seidler, R. D. & Stelmach, G. E. (1995). Reduction in sensorimotor control with age. *Quest*, 47:386-394.

Chapters ([a]undergraduate student, [b]graduate student, [c]postdoctoral associate)

12. Seidler, R. D. & Mulavara, A. P. (in press). Sensorimotor adaptation, including space motion sickness. In J. P. Sutton & L. R. Young, eds. "Encylopedia of Bioastronautics. Springer.
11. Seidler, R. D., [c]Koppelmans V., Bloomberg J., & Mulavara A. P. (2017). Sensory and sensorimotor changes with spaceflight: implications for functional performance. To appear in B. R. Macius, J. H. K. Liu, A. R. Hargens, and C. Otto, eds. "Vision Impairment: Fluid Shifts in Microgravity, Intracranial Pressure and Its Effect on Vision in Space and on Earth". World Scientific.
10. Seidler, R. D. & Schott, N. (2013). Mechanismen altersassoziierter Abnahmen im motorischen Lernprozess. Zeitschrift fur Sportpsychologie, 20(1), 18-24.
9. Seidler, R. D., [b]Kwak, Y., [b]Fling, B. W., & [b]Bernard, J. A. (2013). Neurocognitive mechanisms of error-based motor learning. Invited paper for a proceedings book based on the 2011 Progress in Motor Control conference. Adv Exp Med Biol, 782: 239-60.
8. Seidler, R. D., Benson, B. L., [b]Boyden, N. B., & [b]Kwak, Y. (2013). Skill acquisition. Invited review for the Oxford Handbook of Cognitive Neuroscience, K. Oschner and S. Kosslyn, eds.

7. [b]Anguera, J. A., [c]Bo, J., & Seidler, R. D. (2012). Aging effects on motor learning. In *Encyclopedia of the Sciences of Learning*, Norbert M. Steel (Ed.), Springer Publishing.
6. [c]Bo, J., [c]Langan, J., & Seidler, R. D. (2008). Cognitive Neuroscience of Skill Acquisition. In *Advances in Psychology*, vol. 139, Human Learning: Biology, Brain, and Neuroscience pp.101-112. A. Benjamin, B. Etnyre, & T. Polk, Eds.
5. Seidler, R. D. & Ashe, J. (2008). Procedural Learning: Cerebellum Models. Entry for *Encyclopedia of Neuroscience*, L. Squire, Ed, Elsevier.
4. Seidler, R. D., [b]Bangert A. S., [b]Anguera, J. A., & [b]Walsh, C. M. (2006). Motor Performance, pp.801 - 806. Invited review chapter for *Encyclopedia on Aging*. R. Schulz, L. Noelker, K. Rockwood, R. Sprott, eds. Springer Publishing.
3. Seidler, R. D. , [b]Bangert A. S., [b]Anguera, J. A., & [b]Walsh, C. M. (2006). Motor Control, pp. 228-236. *Encyclopedia of Gerontology* (Second Edition): Age, Aging and the Aged. J. Birren, editor. Elsevier press.
2. Seidler-Dobrin, R. D. & Stelmach, G. E. (1997). Practice and visual feedback in the elderly. In *Healthy Aging, Activity and Sports*, Proc. of IVth International Congress on Physical Activity, Aging, and Sports, G. Huber (ed.). Health Promotion Publications: Germany. pp. 109-117.
1. Seidler, R. D. & Stelmach, G. E. (1996). Motor performance. In *Encyclopedia of Gerontology: Age, Aging, and the Aged.* San Diego: Academic Press, Inc. pp. 177-185.

Publications in review ([a]undergraduate student, [b]graduate student, [c]postdoctoral associate)

Miller NS, Chou KL, Bohnen NI, Muller MLTM, & Seidler RD (under review). Dopaminergic polymorphisms associated with medication responsiveness of gait in Parkinson's disease.

[c]Ruitenberg MFL, De Dios Y, Gadd N, Wood S, Reuter-Lorenz PA, Kofman I, Bloomberg J, Mulavara A & Seidler RD (under review). Multi-day adaptation and savings in manual and locomotor tasks.

[c]Ruitenberg MFL, Koppelmans, V, De Dios Y, Gadd N, Wood S, Reuter-Lorenz PA, Kofman I, Bloomberg J, Mulavara A & Seidler RD (under review). Neural correlates of multi-day learning and savings in sensorimotor adaptation.

[c]Yuan P, [c]Koppelmans V, Reuter-Lorenz PA, De Dios YE, Gadd N, Wood SJ, Riascos R, Kofman I, Bloomberg JJ, Mulavara A, Seidler RD (under review). Vestibular brain changes with 70 days head down bed rest.

Vaillancourt DE, Burciu RG, Ofori E, Nalls MA, Singleton AB, Okun M, & Seidler RD (under review). Parkinson's disease risk genetic polymorphisms are associated with imaging markers of the putamen and substantia nigra in healthy adults.

[c]Ruitenberg MFL, Wu T, Averbeck BB, Chou KL, [c]Koppelmans V, & Seidler RD (under review). Impulsivity in Parkinson's disease is associated with alterations in affective and sensorimotor striatal networks.

Biao T, Carender WJ, Kinnaird C, Barone VJ, Peethambaran G, Whitney SL, Kabeto M, Seidler RD & Sienko KH (under review). Effects of long-term balance training with vibrotactile sensory augmentation among community-dwelling healthy older adults.

Funded Grant Applications - External

As Principal Investigator

NASA (no award number yet) (PI) Does intermittent or continuous artificial gravity counteract long duration bed rest induced neurocognitive declines? Two year award to start ~06/01/2017, $700,000.

NASA 80NSSC17K0021 (PI) Bed rest combined with 0.5% CO_2 as a spaceflight analog to study neurocognitive changes: extent, longevity and neural bases. 06/29/2017-06/26/2019, $498,453.

NSBRI Evaluation of brain white matter integrity in NASA crewmembers: Comparisons with controls, changes with flight, and behavioral consequences. 04/01/2016-03/31/2017, $99,934.

NIH 1R56AG043402-01A1 (PI) Manual Dexterity: Age Differences in Cortical Sensorimotor Representations. 09/30/2015-08/31/2017 (NCE), $466,871.

ORA PLUS / NSF 1420042 Re-LOAD: Motor skill Learning in Older ADults: neurocognitive correlates, individual differences, and interventions to enable healthy aging. ORA Plus international collaborative, W. Verwey PI, R. Seidler, C. Voelcker-Rehage, B. Godde, S. Panzer, E. van Asseldonk CoPIs. R. Seidler portion funded by the NSF. 06/01/2014-05/30/2018, $100,000 total costs annually for R. Seidler portion.

NASA (PI) NNX11AR02G Spaceflight effects on neurocognitive performance: extent, longevity, and neural bases. 08/26/2011-08/25/2019, $1,367,325 total costs.

NSBRI SA02802 (PI) Bed rest as a spaceflight analog to study neurocognitive changes: extent, longevity, and neural bases. 08/01/2012-12/31/2015, $1,200,000 total costs.

NIH (PI) Neural mechanisms of sub-optimal decision making in Parkinson's disease. NIH Intramural subcontract with B. Averbeck, Laboratory on Neuropsychology, 06/22/2012-10/21/2013, $82,386 total costs.

Bachmann-Strauss Dekker Foundation (PI) Identifying predictors of medication responsiveness in patients with Parkinson's disease. 08/01/2011-12/31/2012, $50,000 total costs.

NIH-UM Claude Pepper Older Americans Independence Center (PI) The effect of COMT genotype on age-related declines in motor function. 09/01/2009-08/30/2011, $66,350 total costs.

NIH (PI) R01 AG 24106 ARRA Research supplement for Skill acquisition in older adults, 09/15/2009-12/31/2011, $147,689 total costs.

Gustavus and Louise Pfeiffer Research Foundation (PI) Parkinson's disease: interactions between stage of disease, treatment, and motor and cognitive performance. 01/01/2008-12/31/2010, $225,000 direct costs.

NIH (PI) R01 AG 24106 Research supplement to promote diversity in health related research, 2/15/2006-12/31/2008. $182,229 total costs.

NIH (PI) R01 AG 24106 Skill acquisition in older adults. 09/01/2005-08/31/2009. $1,194,100 total costs.

NIH-UM Claude Pepper Older Americans Independence Center Pilot Grant (PI) Age-related declines in bimanual coordination: neural mechanisms and potential for compensation. 7/1/2003–6/30/2004. $53,550 total costs.

NIA (PI) R03 AG20883 Impaired sensorimotor plasticity in the elderly, 2001-2002, $75,500 total costs.

NASA (PI) Graduate Student Researchers Program Award. The role of vestibular information in eye-head-hand coordination. 1997-1999, $66,000 total costs.

<u>As Co-Investigator/Consultant/Mentor</u>

NIH R01-AG050523 (PI: Polk, R. Seidler CoI) Age-related Changes in Neural Distinctiveness: Scope, Causes and Consequences. 06/01/2016-05/31/2021.

NSBRI SA03801 (Co-I, A. Mulavara PI). Developing personalized countermeasures for sensorimotor adaptability: A bedrest study. 06/01/2014-05/31/2017, $1,200,000 total costs.

NIH R03-NS096484 (PI: Meehan, R. Seidler CoI) Modulating interaction of motor learning networks in rehabilitation of stroke. 06/01/2016-05/31/2018, $150,000 total costs.

Blue Cross Blue Shield of Michigan Investigator Initiated Grant (Co-I, N. Miller PI) Efficacy Assessment of a Community Based Exercise Intervention for Parkinson's Disease. 01/01/2013-12/31/2015, $75,000 total costs.

NSBRI SA02801 (Co-I, J. Bloomberg PI) Developing predictive measures of sensorimotor adaptability to produce customized countermeasure prescriptions. 10/01/2012-05/01/2016, $1,200,000 total costs.

NIH (Consultant, D. Vaillancourt PI) R01 NS075012 Non-invasive markers of neurodegeneration in movement disorders. 09/24/2012-05/31/2017, $2,454,444 total costs.

Michigan Parkinson's Foundation (Co-I; P. Patil, PI) The effects of unilateral and bilateral deep brain stimulation on motor function in patients with Parkinson's disease. 07/01/2011-06/30/2013, $20,000 total costs.

NIH (Co-I; R. Welsh, PI) R01 NS 052514 Cortex changes in real/imagined movements in ALS (Amyotrophic Lateral Sclerosis). 09/30/2007-05/31/2013, $1,421,479 total costs.

NIH (Mentor; Miller, PI) T32 AG000114 Biomedical research training in the biology of aging. 2003-2015.

NIH-UM Claude Pepper Older Americans Independence Center (Co-I, PI on subproject) OAIC RCDC 9/1/2004–12/31/2005. $40,756 total costs.

NASA (Co-I; Grotberg, PI) Bioscience and Engineering Institute, 2003-2007, $6,400,000 total costs.

NASA (Co-I; Bloomberg, PI) NRA 98-HEDS-02 Promoting sensorimotor response generalizability: A countermeasure to mitigate locomotor dysfunction after long-duration space flight. 1998-2001, $797,080 total costs.

Funded Grant Applications - Intramural

<u>As Principal Investigator</u>

Mi Brain Initiative Working Group grant, Multisensory Integration and Reweighting Dynamics, Co-Applicants Rachael Seidler and Kathleen Sienko. 09/01/2015-08/30/2017, $100,000 direct costs.

UM Gilbert Whitaker Fund for the Improvement of Teaching, in support of Neuroscience Graduate Program Curricular reform, entitled Neuroscience Graduate Program Curriculum: From Fundamental Knowledge & Skills to Integrative, Critical Thinking. 01/01/2013 – 12/31/2014, $10,000, plus an additional $10,000 matching funds from the Medical School Dean of Graduate and Postdoctoral Studies.

UM MCubed Interdisciplinary Award (PI) – The aging brain, network changes and functional consequences, 01/01/2013 – 06/30/2014, $60,000 total costs.

UM LSA (PI) Associate Professor Fund – Large scale brain network changes in Parkinson's disease, 07/01/2011–06/30/2013, $27,115 total costs.

UM Rackham (PI) Spring/Summer Faculty Research Grant - The influence of handedness, interhemispheric transfer and age on motor cortex organization. 2010, $6,000 total costs.

UM Center for Advancing Safe Transportation throughout the Lifespan (PI) DTRT07-G-0058 Cognitive training as an intervention to improve driving ability in the older adult. 09/15/08–09/14/09, $246,346 total costs.

UM Rackham (PI) Parkinson's disease: interactions between stage of disease, treatment, and motor and cognitive performance. 2007-2008, $15,315 total costs.

UM OVPR (PI) Motor behavioral changes with age: neural mechanisms and compensation in the aging brain. 2003–2004, $14,292 total costs.

UM Rackham (PI) Neuroimaging of human motor skill learning processes. 2003, $4,000 total costs.

UM Undergraduate Research Opportunity Program Summer Biomedical Research Fellowship (PI) Does handedness predict transfer of learning? 2003, $3,500 total costs.

UM fMRI Center (PI), Acquisition of pilot project data. 2002-2003.

UM Rackham (PI) Neuroimaging of human motor skill learning processes. 2002, $14,885 total costs.

As Co-Investigator/Consultant/Mentor

UM OVPR, (Co-I, T. Tardif PI) Shared Equipment Grant - Pediatric multimodal neuroimaging shared equipment. 2012, $287,763 total costs.

Honors, Awards, and Society Memberships

Frontiers Travel Award, 2015, $3000 (awarded to 30 out of 50,000+ editors and reviewers for outstanding service to the Frontiers journals)
School of Kinesiology Research Faculty Award, 2013
NIH Loan Repayment Program Awardee, 2003-2005
NASA/ASEE Summer Faculty Fellow Award, Johnson Space Center, Houston, TX, 2002
Preparing Future Faculty Fellow, 1998-1999
ASU Regents' Graduate Academic Scholarship, 1998
Rousseau Award for graduate student research in gerontology, 1997
Society for Neuroscience member, 1997-present
Neural Control of Movement Society member, 1998-present
Cognitive Neuroscience Society member, 2005-present
International Graphonomics Society member, 2003-present

University & Professional Service

2016-17 Movement Science program chair
2016- National Space Biomedical Research Institute, Sensorimotor Adaptation Research Team Associate Lead. Help to coordinate the studies of scientists at 8 institutions working on 5 funded projects, lead monthly team meetings, prepare annual report, organize conferences.
2015-16 Organizing committee, 2016 Biomechanics and Neural Control of Movement Conference, June 2016, Deer Creek, Ohio.
2013-2019 Neural Control of Movement Society Elected Board Member
2016 Neural Control of Movement Society annual meeting, Discussion co-organizer, "Straining to remember: Is retention more than muscle memory?"
2015 Participant, external expert panel, How can the NASA Human Research Program benefit from 'omics approaches?, November, Houston, TX.
2015- Vice President, International Society for Motor Control
2015 Hosted the Sensorimotor Social at the Society for Neuroscience annual meeting, Chicago.
2015 Sensorimotor Session Co-Chair, NASA Human Research Program annual conference, Galveston TX.
2015 Conference Co-Organizer, "Towards Integrated Countermeasures for Deep Space Exploration: Vestibular Function for Balance and Beyond", May 2015. National Space Biomedical Research Institute, Houston TX, ~50 participants.
2014 Conference Co-Organizer, "Designing for the Future: Remote Rehabilitation and Integration of New Technologies in Spaceflight", April 2014. National Space Biomedical Research Institute, Houston TX, ~50 participants.
2014 Search committee chair, Motor Development, Disability, and Physical Activity faculty position, School of Kinesiology
2014 Participant, National Space Biomedical Research Institute Brings Space Biomedical Research Down to Earth, Congressional Demonstrations, Washington DC
2014 Sensorimotor Session Chair, NASA Human Research Program annual conference, Galveston TX.

2014-2015 Movement Science Program Chair, University of Michigan

2013-2015 National Space Biomedical Research Institute, Sensorimotor Adaptation Research Team Lead. Coordinate the studies of scientists at 8 institutions working on 5 funded projects, lead monthly team meetings, prepare annual report, organize conferences.

2013 Conference Co-Organizer, "Effects of Spaceflight, Measurement and Countermeasures across Sensorimotor / Exercise / VIIP Themes. National Space Biomedical Research Institute Houston TX, August 2013. ~50 participants.

2013 Conference Co-Organizer, "Effects of Long Duration Spaceflight on Brain and Behavior", Houston TX, February 2013. ~50 participants.

2013 Student and postdoctoral researcher poster judge, NASA Human Research Program Annual Investigator's conference, Galveston TX, February 2013

2012-2014 Associate Director, Neuroscience Graduate Program, 140 faculty / 60 students. Responsible for curriculum and preliminary examinations; participate in recruitment, admissions, and other program activities.

2012 School of Kinesiology Tenure and Promotion Panel

2012- School of Kinesiology Coursera Committee

2012-2014 School of Kinesiology Executive Committee member

2011-2012 Psychology Department Cognition & Cognitive Neuroscience area graduate admissions committee

2011-2013 UM Functional MRI Laboratory Executive Advisory Committee

2010-2012 Psychology Department Executive Committee member

2011-2012 Neuroscience Program Candidacy Exams Committee Member (committee is responsible for development, administration, and evaluation of exams for the entire second year graduate student cohort)

2009-2012 Advisory board member for NIDRR grant, "Preparations for In-Home Testing and brain-computer Interfaces Operating Assistive Technology", J. Huggins, University of Michigan, PI.

2009-2011 NASA Human Research Program Sensorimotor Risk Standing Review Panel; charged with evaluating how well the Integrated Research Plan addresses risks and develops countermeasures for sensorimotor risks in space travel

2008-2010 Co-chair, Kinesiology search committee for Motor Control faculty position

2008-2009 Cognition & Perception area (Psychology) graduate recruitment committee

2007-2009 Advisory board member for DOED-NIDRR grant "Adapted Assessment of Speed of Information Processing in Children with Cerebral Palsy", S. Warschausky, M. van Tubbergen, and J. Kaufman, University of Michigan, investigators.

2006-2007 Psychology Department Augmented Executive Committee (for faculty annual reviews Spring 2007)

2006-2007 Kinesiology search committee member for Exercise Physiology faculty position

2006 Kinesiology committee for faculty/staff giving program

2005 UM NIH Pepper Center junior faculty representative

2004 Winter semester graduation marshal for Kinesiology

2003-2005 Neuroscience Program Executive Committee member

2003-2004 Cognition & Perception area graduate recruitment committee member

2003-2004 Cognition & Perception area graduate admissions committee member

2003-2004 Psychology Department Augmented Executive Committee (for faculty annual reviews Spring 2004)

2003 Fall semester graduation marshal for Psychology

2002 UM Preparing Future Faculty Seminar- panel presentation by junior faculty for UM graduate students.

2000 13th IAA Humans in Space Conference, Session Rapporteur.

1999 Search committee member to hire Exercise Science Ph.D. Program Director.
1997 Search committee member for Senior Systems Analyst position, ESPE department
1996-1998 Motor Control Laboratory network backup administrator.

Community Service

2014 FEMMES capstone event keynote speaker (Females Excelling More in Math, Engineering, and Science, research activity program for disadvantaged 10 – 12 year old girls held at UM).
2014 "The Making of Experts", lecture presented to the University of Michigan Birmingham Alumnae Club.
2013 "Getting Dizzy: Sensory Integration", lecture and activities presented for FEMMES capstone event (Females Excelling More in Math, Engineering, and Science) for disadvantaged 10 – 12 year old girls.
2013 "My Generation: The Brain in Motion Across the Lifespan", lecture for Adult Learning Institute spring lecture series.
2012 "Spaceflight Induced Sensorimotor Adaptations", presented to Psi Xi (Psychology Honor Society) and Students for the Explorations and Development of Space, University of Michigan, November.
2012 "The Brain in Motion in Health and Disease", presented at the Michigan Meetings in Naples, FL (~200 attendees), February.
2010 "The Brain in Motion" presentation & activities at Daycroft Montessori School, Ann Arbor
2009 "The Aging Brain: Declines and Interventions" presentation to the UM annual Mini Med course (public course offering, 300 attendees)
2009 "Neural Control of Movement" presentation to Michigan Research Community (UROP students)
2009 "Cognitive Training as an Intervention to Improve Driving in Older Adults" presentation to Michigan Mobility Meeting (state transportation officials, ARRP staff, community organizations, occupational therapists, etc)
2004-2006 "The brain-mind-muscle-connection". University of Michigan Saturday seminar program for local area high school students.
2004 "This is your brain on dance", public program on the integration of arts and technology, sponsored by the UM Life Sciences, Values & Society Program, in association with residence of the Merce Cunningham Dance Company. Assisted in program planning and participated as a panel speaker.
2003,5,8 Ann Arbor Brains Rule day- reverse science fair for local area 6th grade students. Organized, planned, and conducted a demonstration on the neuroscience of movement.
2001 U MN Center for Magnetic Resonance Research open house- prepared lectures and mock experiments for 1 day visit by Minneapolis local jr. high & high school students.
2001 Presentation to Minneapolis Parkinson's support group: Motor Learning in Parkinson's Disease (slide presentation).
2000 Oasis program speaker, Aging and Balance Control.
1999 "Journeys of the Mind" seminar speaker (public education series).
1998 Workshop speaker, Explorathon AZ for Women in Science and Engineering (jr. high school girls).
1998 Classroom visit, Tesseract Elementary School. NASA research & activities.
1998 Presentation to Central Phoenix Parkinson's support group: Motor Control and Parkinson's Disease (slide presentation).

1995 Presentation to Sun City Parkinson's support group: Balance Training for the Elderly.

Editorships

2014 – 2015, Edited a special issue of Frontiers in Human Neuroscience entitled "A multidisciplinary approach to designing sensorimotor countermeasures for space exploration missions", with Ajitkumar Mulavara.
2013 – present, Associate Editor, Frontiers in Human Neuroscience
2012 – 2013, Edited a special issue of Frontiers in Human Neuroscience entitled "A multidisciplinary approach to motor learning and sensorimotor adaptation", with Sean Meehan.
2012 – present, Executive Editor, Journal of Motor Behavior
2011 – present, Editorial Board, ISRN Rehabilitation
2010 – present, Review Editor, Frontiers in Cognition
2007 – 2012, Consulting Editor for the Journal of Motor Behavior

Reviewer

Journals, Ad hoc:

Acta Psychologica
Behavioural Brain Research
Brain
Brain Research Bulletin
Brain Imaging & Behavior
Cerebellum
Cerebral Cortex
Clinical Interventions in Aging
Current Aging Science
Developmental Psychology
European Journal of Neuroscience
Exercise and Sport Sciences Reviews
Experimental Brain Research
Frontiers in Neuroscience
Frontiers in Psychology
Human Brain Mapping
Human Factors
Journal of Applied Biomechanics
Journal of Applied Physiology
Journal of Cognitive Neuroscience
Journal of Experimental Psychology: Learning, Memory & Cognition
Journal of Gerontology: Medical Sciences
Journal of Gerontology: Psychological Sciences
Journal of Motor Behavior
Journal of Neurophysiology
Journal of Neuroscience
Journal of Neuroscience Methods
Journal of the International Neuropsychological Society
Journal of the Neurological Sciences
Motor Control
Movement Disorders
Neurobiology of Aging
Neuroimage
Neuropsychologia
Neuropsychology
Neuroscience and Biobehavioral Reviews
Neuroscience Letters
PLOS Computational Biology
Psychological Science
Psychology and Aging
Quarterly Journal of Experimental Psychology
Research Quarterly for Exercise and Sport
Trends in Cognitive Sciences

Grant Reviews:

Extramural

NSBRI First award program reviewer, 2015
NASA HERO Program grants, 2015
NIH ad hoc reviewer ZRG1 BBBP-X 2014
University of Marseille grant program 2013
Agence Nationale de la Recherche (France) grant program 2013
NIH ad hoc reviewer Motor Function, Speech and Rehabilitation study section 2010

NSF ad hoc reviewer Cognitive Neuroscience program and Perception, Action, & Cognition program (by mail), 2009- present (1 – 2 applications per year)
NIH ZRG1 BBBP-J and BBBP-L panels ad hoc reviewer for Challenge Grants, phase 1 (mail), 2009
NSF Graduate Fellowship Panelist 2007
NIH ad hoc reviewer Cognition & Perception study section 2006
NIH ad hoc reviewer Sensory, Motor, and Cognitive Neuroscience fellowship study section 2006
Medical Research Council grants, UK 2006
Concerted Action Program of the Ministry of Education of Flanders (Belgium) Centres of Excellence 2005
NASA 2004
University of British Columbia intramural grant program 2004

Intramural
Michigan Center for Advancing Safe Transportation Throughout the Lifespan, research excellence grant reviewer, 2009, 2010
Michigan Institute for Clinical and Health Research (MICHR) CTSA pilot grant reviewer 2007
UM NIH Pepper Center Career Development Awards program reviewer 2005, 2006
University of Michigan OVPR faculty grant program reviewer 2005

Miscellaneous:
Book proposal review for The Johns Hopkins University Press (2007, 2010)
Book proposal review for Palgrave Macmillan (2007, 2009)
Textbook review for Allyn & Bacon Publishers (2002)
International Graphonomics Society Annual Meeting Program Committee (paper reviewer) (2004, 2005, 2007)
Reviewed junior faculty abstracts for national NIH Claude D. Pepper Centers annual meeting (10 centers) (2005)

Teaching Experience

Undergraduate courses:
MVS 320 Human Motor Control (4 times, ~ 70 students / class)
MVS 250 Research Methods & Statistics (1 time, 60 students)
MVS 424 Changes in Sensorimotor Control with Age (1 time, n=21)
PSYCH 447 Cognitive Neuroscience of Action (3 times, ~ 60 student / class)
Psych 402 / MVS 427 Cognitive Neuroscience of Expertise in Athletics, Arts, & Academics (5 times, 50 – 100 students / class)
Independent studies (over 150 students since 2001): MVS 384, MVS 488, MVS 402, MVS 429, MVS 490, PSYCH 331, PSYCH 322, PSYCH 326, PSYCH 420, UROP, SROP

Graduate courses:
PSYCH 808 Cognitive Neuroscience of Action (1 time, 8 students)
KIN 512 Neural Control of Movement (W 2004, n=13, F 2008, n=10)
Neurosci 616 Motor & Cognitive Systems (1 credit module of Neurosci 602 Principles of Neuroscience II, W 2003, n=19; W 2004, n=25)
Independent studies (over 40 students since 2001, for whom I'm not the primary advisor): KIN 682, KIN 684, KIN 995, BIOMED 590, NEUROSCI 801, NEUROSCI 995

Faculty Mentoring

2008-2010 Jinsung Wang, University of Wisconsin-Milwaukee, K01 consultant/mentor, "Hemispheric Lateralization and Interlimb Transfer of Motor Learning", 5K01HD050245 supported by NICHD/NCMRRm 2007-2012
2011-present Sean Meehan, University of Michigan Kinesiology assistant professor
2014-present Soo-Eun Chang, University of Michigan Psychiatry assistant professor
2015-present Shawn Hervey-Jumper, University of Michigan Neurosurgery assistant professor
2015-present Taraz Lee, University of Michigan Psychology postdoctoral fellow / research scientist

Doctoral Students

2003-2007 Ashley Bangert (Psychology, UM, Co-Chair, National Science Foundation Fellow, currently assistant professor of Psychology at UTEP)
2003-2008 Joaquin Anguera (Kinesiology, UM, Chair, currently assistant professor of Neurology at UC San Francisco)
2007-2011 Youngbin Kwak (Neuroscience, UM, Chair, currently assistant professor of Psychology at UMass Amherst)
2007-2011 Brett Fling (Kinesiology, UM, Chair, currently assistant professor of Neurology at Oregon Health Sciences University)
2007-2012 Jessica Bernard (Psychology, UM, Chair, currently assistant professor of Psychology at Texas A&M).
2009-2012 Nate Boyden (Psychology, UM, Chair, National Science Foundation Fellow, exited program with MS degree)
2009-present Melissa Wright (Kinesiology, UM, Chair; currently on medical leave)
2012-present Brian Greeley (Psychology & Kinesiology, UM, Chair)
2013-present Fatemeh Noohi (Psychology & Kinesiology, UM, Chair)
2014-present Kaitlin Cassady (Psychology, UM, Chair)
2014-present Katherine Cooke (Psychology, UM, Co-Chair)
2016-present Kathleen Hupfeld (Applied Physiology & Kinesiology, UF, Chair, National Science Foundation Fellow)
2017-present Lauren Banker (Applied Physiology & Kinesiology, UF, Chair)

Doctoral Dissertation Committee Member

2002 Cathy Larson (Kinesiology, UM, member)
2003 – 2004 Leon Gmeindl (Psychology, UM, Cognate member)
2004 – 2005 Keith Gordon (Kinesiology, UM, member)
2004 – 2007 Diane Adamo (Kinesiology, UM, member)
2005 – 2007 Daniel Goble (Kinesiology, UM, member)
2007 – 2008 Michael Franklin (Psychology, UM, member)
2006 – 2009 Antoinette Domingo (Kinesiology, UM, member)
2008 – 2010 Mary ("Katie") Askren (Psychology, UM, Cognate member)
2010 – 2012 Joe Gwin (dual degree Kinesiology & Mechanical Engineering, member)
2011 – 2012 Alicia Hofelich (Psychology, UM, member)
2011 – 2013 Jillian Lee Wiggins (Psychology, UM, member)
2011 – 2013 Samantha Scotland (IOE, UM, member)
2012 – 2014 Joshua Carp (Psychology, UM, Cognate member)
2012 – 2014 Sara Festini (Psychology, UM, Cognate member)
2014 – 2015 Maggie Sikora (Neuroscience, UM, member)
2015 - Chelsea Cummiford (Neuroscience, UM, member)
2016 - Lorraine Suzuki (Kinesiology, UM, member)
2016 - Jose Torres (Psychology, UM, member)

Doctoral Student Guidance Committee Member

2003- 2007	Daniel Goble (Kinesiology, UM)
2004- 2009	Antoinette Domingo (Kinesiology, UM)
2008 – 2012	Joe Gwin (Kinesiology & Mechanical Engineering joint degree, UM)
2007- present	Melissa Wright (Kinesiology, UM)
2013 – present	Lorraine Suzuki (Kinesiology, UM)

Postdoctoral Associates

2006- 2009	Jin Bo (currently Psychology associate professor at EMU)
2006- 2008	Jeanne Langan (currently Physical Therapy assistant professor at SUNY Buffalo)
2010- 2014	Nathan Miller (currently Psychology assistant professor at UM-Flint)
2012- 2014	Burak Erdeniz (currently assistant professor of Psychology at Izmir University of Economics, Turkey)
2012- 2017	Vincent Koppelmans (currently Psychiatry research assistant professor at the University of Utah)
2014-2017	Peng Yuan (currently research scientist at Ford Motor Company)
2015- 2017	Marit Ruitenberg (currently postdoctoral fellow at the University of Ghent, Belgium)
2016- present	Jessica Lee

Senior Thesis Advisor

2002-3	Anna Boonin (Psychology, UM, Co-Advisor with Dr. P. Reuter-Lorenz) *"Better timing with time? The effects of practice & task difficulty on bimanual coordination"*
2003-4	Cori Chase (Kinesiology, UM) *"Does handedness predict intermanual transfer of skill learning?"*
2006-7	Amanda Szabo (Kinesiology, UM) *"Does physical activity mitigate age-related changes in timing?"*
2009-10	Bryan Benson (Psychology, UM), highest honors distinction "*Do explicit instructions and brief rest periods improve motor skill learning?"*
2009-10	Riti Trivedi (Psychology, UM) *"Does handedness affect interhemispheric interactions? A lifespan approach"*
2009-10	A. Zack Wisti (Neuroscience, UM) *"The effects of musical training on bimanual control and interhemispheric transfer"*
2010-11	Melanie Sottile (Neuroscience, UM) *"Dopaminergic Effects on Temporal Processing in Parkinson's Disease: A Pharmacological and Genetics Approach"*
2011-12	Sariha Moyen (Psychology, UM) *"Elucidating the Role of the Basal Ganglia in Timing Perception in Patient's with Parkinson's Disease"*
2014-15	Rebecca Scharf (Neuroscience, UM) *"Olfactory function in Parkinson's disease improves following long-term cycling, but not after an acute, single cycling session"*

Invited Lectures

2017: Effects of One Year of Spaceflight on Neurocognitive Function. NASA One Year Mission Workshop, Houston, TX, March.

Effects of One Year of Spaceflight on Neurocognitive Function. NASA Human Research Program Investigator's Workshop, Galveston, TX, January.

Spaceflight Effects on Neurocognitive Performance: Extent, Longevity and Neural Bases. NASA Human Research Program Investigator's Workshop, Galveston, TX, January.

2016: Cognitive Contributions to Motor Skill Learning and Retention, Biomechanics Department, University of Nebraska Omaha, December 2016.

Cognitive Contributions to Motor Skill Learning and Retention, Neuroscience Department, Brown University, November 2016.

This is Your Brain in Space, Science & Cocktails public lecture, Copenhagen, Denmark, May 2016.

Cognitive Contributions to Motor Skill Learning and Retention, Department of Health & Kinesiology Distinguished Lecture Series, Texas A & M University, March 2016.

The Effects of Spaceflight on Neurocognitive Performance: Extent, Longevity, and Neural Bases, NASA Human Research Program Investigator's Workshop, Galveston, TX, February.

Cognitive Contributions to Motor Skill Learning and Retention, Department of Applied Physiology and Kinesiology, University of Florida, February 16.

2015: Predicting Individual Differences in Medication Responsiveness in Parkinson's Disease. Action Club, Pennsylvania State University, November 13, 2015.

Cognitive Contributions to Motor Skill Learning. Kinesiology Colloquium, Pennsylvania State University, November 12, 2015.

Mapping Human Cortico-Cerebellar Functional Connectivity & Its Behavioral Associations. BNA 2015 British Festival of Neuroscience, Edinburgh, Scotland, April 16, 2015.

Predicting Individual Differences in Medication Responsiveness in Parkinson's Disease. Parkinson's Disease Research Forum 2015, Iowa State University, April.

Cognitive Contributions to Skill Learning. Harriet M. Wall lecture in Psychology, UM-Flint, April.

The Effects of Long Duration Head Down Tilt Bed Rest on Neurocognitive Performance: Extent, Longevity, and Neural Bases. NASA Human Research Program Investigator's Workshop, Galveston, TX, February.

The Effects of Spaceflight on Neurocognitive Performance: Extent, Longevity, and Neural Bases, NASA Human Research Program Investigator's Workshop, Galveston, TX, February.

2014: Cognitive Contributions to Skill Learning. Autumn Movement Science School, Max Planck Institute for Human Development, Berlin, Germany, October.

The Effects of Spaceflight and a Spaceflight Analog on Neurocognitive Performance: Extent, Longevity, and Neural Bases. NASA Human Research Program annual conference, Galveston, TX, February.

The Effects of Spaceflight and a Spaceflight Analog on Neurocognitive Performance: Effects of Exercise. NASA Human Research Program annual conference, Galveston, TX, February.

Cognitive Contributions to Skill Learning in Young and Older Adults. University of Illinois, Chicago Physical Therapy department seminar, January.

2013: Spaceflight & Bed Rest Effects on Neurocognitive Performance: Preliminary Results. Towards Integrated Countermeasures NSBRI Conference, Houston, TX, August.

Skill Learning in Older Adults. Keynote lecture at Motor and Cognitive Performance Across the Lifespan Conference, Stuttgart, Germany, March.

Reflections on a Decade of Cerebellar Research, University of Essen, Essen, Germany, March.

Age Differences in Corpus Callosum Structure and Physiologic Function, School of Brain and Behavior Sciences, University of Dallas, Dallas, TX, February.

The Effects of Spaceflight and Long Duration Bedrest on Neurocognitive Performance: Extent, Longevity, & Neural Bases. NASA Human Research Program Investigator's Meeting, Galveston, TX, February.

Leveraging Recent Findings on Individual Differences in Sensorimotor Adaptability to Design and Evaluate New Countermeasures. Effects of Long Duration Spaceflight on Brain and Behavior NSBRI Conference, Houston, TX, February.

2012: Cognitive Contributions to Motor Learning. Keynote lecture at the National Center for Human Performance Annual Meeting, Houston, TX, November.

Cognitive Contributions to Motor Learning. Pennsylvania State University Action Club, State College, November.

Skill Acquisition in Older Adults. NIH T32 Biology of Aging Training Grant Seminar, Ann Arbor, MI, October.

Reflections on a Decade of Cerebellar Research. Keynote lecture for University of Michigan annual FMRI symposium, Ann Arbor, September.

Cognitive Contributions to Motor Learning in Young and Older Adults. New Strategies to Optimize the Acquisition and Consolidation of Motor Skills, FENS Satellite Meeting, Barcelona, Spain, July.

Cognitive Contributions to Motor Learning. NIH Movement Disorders Group (NINDS, Leonardo Cohen, host) seminar, Bethesda, MD, May.

Spaceflight Effects on Neurocognitive Performance: Extent, Longevity, & Neural Bases. NASA Human Research Program Investigator's Meeting, Houston, TX, February.

Effects of Brain Network Integrity on Motor Function, University of Oregon Department of Psychology, January.

2011: Effects of Brain Network Integrity on Motor Function, University College London Division of Psychology and Language Sciences, December.

Effects of Brain Network Integrity on Motor Function, Cambridge University Sensorimotor Learning Group, December.

Using fMRI to Study Cerebellar Contributions to Motor Learning. Society for Neuroscience satellite meeting "Methods for Studying Human Cerebellar Structure and Function", John Hopkins University, November.

Effects of Brain Network Integrity on Motor Function, Swiss Federal Institute of Technology Zurich (ETH Zurich), Department of Health Sciences & Technology, October.

Dopaminergic Effects on Neurocognitive Function in Parkinson's Disease. University of Michigan Department of Neurology Conference, September.

Dopaminergic Effects on Sequence Learning and Corticostriatal Connectivity in Parkinson's Disease. University of Michigan Neurodegenerative Disease Research Seminar, Department of Neurology, February.

Dopaminergic Effects on Sequence Learning in Parkinson's Disease. University of Oregon, Human Physiology Department seminar, February.

Dopaminergic Effects on Sequence Learning and Corticostriatal Connectivity in Parkinson's Disease. University of North Carolina Neurology Grand Rounds, March.

Dopaminergic Effects on Sequence Learning and Corticostriatal Connectivity in Parkinson's Disease. University of Utah Psychology Department, March.

Cognitive Contributions to Skill Learning. Invited presentation for Neural Control of Movement Society Annual Meeting Satellite conference on Motor Learning, Puerto Rico, April.

Sensorimotor Adaptation. Invited presentation for Progress in Motor Control, Cincinnati, July.

2010: Age Differences in Callosal Contributions to Motor and Cognitive Behavior. Duke University, November.

Age Differences in Callosal Contributions to Motor and Cognitive Behavior. University of North Carolina, November.

Age Differences in Callosal Contributions to Motor and Cognitive Behavior. LIFE Academy, Berlin, Germany, October.

Age Differences in Callosal Contributions to Motor and Cognitive Behavior. Cognitive Aging Conference, Dortmund, Germany, October.

Neuro-cognitive Contributions to Motor Skill Acquisition. USRA Division of Space Life Sciences Bioastronautics Seminar Series, Houston TX, August.

Motor Skill Learning in Health & Disease. University of Toronto Medical School, Chen lab, April.

2009: Age-Related Changes in Motor System Functional Connectivity. Wayne State University IOG Seminar, December.

Do Cognitive Declines Contribute to Age-Related Motor Learning Deficits? Symposium presentation at NASPSPA annual meeting, Austin TX, June.

Age-Related Changes in Motor System Functional Connectivity. LIFE Academy, Zurich, Switzerland, May.

Cognitive Training as an Intervention to Improve Driving in Older Adults. Michigan Center for Advancing Safe Transportation Throughout the Lifespan Conference, April.

2008: Motor Systems. Tutorial for Mathematical Biosciences Institute (Ohio State University) workshop, Real Time Brain Interfacing Applications, May.

Cognitive Contributions to Skill Acquisition. Department of Kinesiology seminar, Arizona State University, March

2007: Cognitive Neuroscience of Skill Learning and Transfer in Young and Older Adults. LIFE symposium, Berlin, Germany.

Cognitive Contributions to Skill Acquisition. Invited Army workshop, “Interactions Among Movement, Physical Exertion, and Cognitive Performance”, US ARMY workshop, Natick, MA.

2006: Skill Learning and Transfer: Neural and Behavioral Mechanisms. Texas A&M University, Health and Kinesiology departmental seminar.

2004: Temporal Dynamics of Skill Acquisition. Motor Control: Trends and

Perspectives conference, Tempe, AZ May 2004.

Aging, interhemispheric communication, and bimanual coordination. University of Michigan Movement Science faculty seminar, May 2004.

Aging, interhemispheric communication, and bimanual coordination. University of Michigan Neuropsychology department seminar, May 2004.

Neural Substrates for Encoding and Expression of Implicit Sequence Learning. Neural Control of Movement satellite meeting on Motor Learning and Plasticity, March 2004, Barcelona Spain.

2003: Skill Acquisition in Older Adults. Arizona State University Motor Control Laboratory, Tempe AZ.

Separating Motor Learning from Performance Change: An fMRI investigation. University of Michigan Biopsychology Colloquium.

Skill Acquisition in Older Adults. Institute of Gerontology, University of Michigan.

Functional Neuroimaging of Human Motor Skill Learning. Advanced Rehabilitation Research Training Program Seminar Series, University of Michigan Department of Physical Medicine and Rehabilitation.

Sensorimotor Plasticity in the Elderly. LIFE Spring Academy-A collaborative graduate study program between the Max Planck Institute for Human Development, Berlin, the Humboldt-University in Berlin, the Free University of Berlin, and the University of Michigan, Ann Arbor, USA

Neural Substrates for Encoding and Expression of Implicit Learning. University of California, Irvine, Cognitive Sciences Department colloquium.

2002: Motor Skill Learning: From Cognition to Skilled Repertoire. University of Michigan Cognition and Perception Forum.

Separating Motor Learning from Performance Change: An fMRI investigation. University of Michigan Functional MRI Symposium.

The Cerebellum, Motor Learning, and Performance Change. McKnight Brain Institute and Brooks Rehabilitation Center, University of Florida, Gainesville.

2001: Implicit Sequence Encoding and Expression of Learning. University of Michigan Industrial and Operations Engineering seminar series.

Implicit Sequence Encoding and Expression of Learning: an fMRI investigation. Iowa State University, Dept. of Health & Human Performance.

Implicit Sequence Encoding and Expression of Learning: an fMRI investigation. University of Michigan, Division of Kinesiology.

2000: Sensorimotor Maps Used for the Execution of Goal-Directed Actions. Brain Sciences Center, Minneapolis VAMC.

1999: Coordinate Systems Used for the Execution of Goal-Directed Actions. State of Arizona Neuroscience Conference, Flagstaff, AZ Dec.

Coordinate Systems Used for the Execution of Goal-Directed Actions. Action Club, The Pennsylvania State University.

1998: Changes in visual feedback reliance during motor learning in the elderly. State of Arizona Neuroscience Conference, Phoenix, AZ, Jan.

1997: Specification of body segments with imposed temporal constraints. "Doings in Motor Control" seminar, U. of Arizona, Tucson.

Workshops Attended

Strategies Towards Excellent Practices in Departments, organized and sponsored by the UM NSF Advance Program, Ann Arbor, May 2012.

Diffusion Tensor Imaging educational course, Human Brain Mapping annual meeting, June 2010.

IMPAC, Interactions among Movement, Physical Activity, and Cognitive Performance, organized and hosted by US Army, Natick MA, June 2007.

Enhancing Physical Activity in Healthy and Disabled Older Adults, The University of Michigan Older Americans Independence Center grant writing and research workshop, May 2003.

Mini-Fellowship in Transcranial Magnetic Stimulation, Beth Israel Deaconess Medical Center, Harvard Medical School, July 2003.