JEREMIAH WANDER

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EDUCATION

University of Washington, Seattle, WA
Ph. D. in Bioengineering **2015**
Dissertation: Neural correlates of learning and intent during human brain-computer interface use

North Carolina State University, Raleigh, NC
B.S. in Electrical Engineering, B.S. in Computer Engineering **2005**
Honors: Valedictorian, Summa cum Laude

PROFESSIONAL & RESEARCH EXPERIENCE

Microsoft Corporation, Redmond, WA
Researcher **2015 - Present**

University of Washington, Seattle, WA
Graduate Research Assistant **2010 - 2015**

Microsoft Corporation, Redmond, WA
Research Intern – Microsoft Research **2013**

Fundación Progreso Guanacaste, Guanacaste, CR
Volunteer Project Manager / Math Teacher **2009 - 2010**

NCSRT, Inc., Apex, NC
Electrical Engineer **2006 - 2008**

Politecnico di Milano, Milan, Italy
Research Intern – Biomedical Systems **2005**

IBM Corp., Raleigh, NC
Co-op Programmer **2002 - 2005**

TEACHING/MENTORSHIP EXPERIENCE

University of Washington, Seattle, WA
Teaching Assistant – CSE/Neubeh 528 Computational Neuroscience **2013**

University of Washington, Seattle, WA
STEM Outreach Mentor, CSNE **2012-2015**

REFEREED PUBLICATIONS

[1] **JD Wander**, et al. Distributed cortical adaptation during learning of a brain–computer interface task (2013). Proceedings of the National Academy of Sciences.

[2] L A Johnson, **J D Wander**, D Sarma, D K Su, E E Fetz and J G Ojemann. Direct electrical stimulation of the somatosensory cortex in humans using electrocorticography electrodes: a qualitative and quantitative report (2013). Journal of Neural Engineering, 10(3), 036021.

[3] **JD Wander**, JD Olson, JG Ojemann, RPN Rao. Cortically-derived error-signals during BCI use. Proceedings of the 13th Annual BCI Meeting, Asilomar, CA, June, 2013.

[4] **JD Wander**, RPN Rao. Brain-computer interfaces: a powerful tool for scientific discovery. Current Opinion in Neurobiology 2014, 25:70-75.

[5] **JD Wander**, D Morris. A combined segmenting and non-segmenting approach to signal quality estimation for ambulatory photoplethysmography. (2014) Journal of Physiological Measurement, 35 (12), 2543.

[6] **JD Wander**, RPN Rao, JG Ojemann. Multiple roles of ventral premotor cortex in BCI task learning and execution. Proceedings of the 6th International Brain-Computer Interface Conference, Graz, Austria, 2014.

[7] H Sun, TM Blakely, F Darvas, **JD Wander**, LA Johnson, DK Su, KJ Miller, EE Fetz, JG Ojemann. Sequential activation of premotor, primary somatosensory and primary motor areas in humans during cued finger movements (2015). Clinical Neurophysiology.

[8] Jared Olson, **Jeremiah Wander**, Felix Darvas. Subdermal recording of high gamma cortical signals for brain machine interfacing. Proceedings of the Annual meeting of the Association for Academic Physiatrists, San Antonio, March, 2015.

[9] KE Weaver, **JD Wander**, AL Ko, K Casimo, TJ Grabowski, JG Ojemann, F Darvas. Directional patterns of cross frequency phase and amplitude coupling within the resting state mimic patterns of fMRI functional connectivity (2016). NeuroImage.

[10] K Casimo, F Darvas, **J Wander**, A Ko, T Grabowski, E Novotny, A Poliakov, JG Ojemann, KE Weaver. Regional patterns of cortical phase synchrony in the resting state (2016). Brain Connectivity, doi:10.1089/brain.2015.0362.

[11] **JD Wander**, D Sarma, LA Johnson, EE Fetz, RPN Rao, JG Ojemann, F Darvas. Cortico-cortical interactions during acquisition and use of a neuroprosthetic skill (2016). Plos Computational Biology, *in press*.

POSTER PRESENTATIONS

[1] **JD Wander**, T Blakely, LA Johnson, F Darvas, KJ Miller, RPN Rao, JG Ojemann. Dynamics of distributed cortical activity demonstrated over the course of learning to use a brain-computer interface. Proceedings of the 42nd Annual Society for Neuroscience conference, New Orleans, LA, October, 2012.

[2] L Johnson, **JD Wander**, C Dickey, S Marihugh. Wireless EMG-controlled car: a demonstration of sensorimotor neural engineering. Proceedings of the 42nd Annual Society for Neuroscience conference, New Orleans, LA, October, 2012.

[3] KE Weaver, **JD Wander**, EJ Novotny, T Grabowski, TM Blakely, JG Ojemann. High gamma suppression in the default mode network in children: electrocorticographic findings. Proceedings of the 42nd Annual Society for Neuroscience conference, New Orleans, LA, October, 2012.

[4] H Sun, T Blakely, F Darvas, **JD Wander**, KJ Miller, and JG Ojemann. Temporal interactions between somatosensory and motor cortices during cued finger pinch movement in humans. Proceedings of the 19th Annual Meeting of the Organization for Human Brain Mapping, Seattle, WA, June, 2013.

[5] **JD Wander**, DP Sarma, JD Olson, KJ Miller, T Blakely, RPN Rao, JG Ojemann. Cortical representation of cognitive state in a graded-difficulty BCI task. Proceedings of the 43rd Annual Society for Neuroscience conference, San Diego, CA, November, 2013.

[6] H Sun, T Blakely, F Darvas, **JD Wander**, LA Johnson, D Su, KJ Miller, EE Fetz, JG Ojemann. Sequential activation of premotor, primary somatosensory, and primary motor areas in humans during cued finger movements. Proceedings of the 43rd Annual Society for Neuroscience conference, San Diego, CA, November, 2013.

[7] **JD Wander**, DP Sarma, V Paramasivam. Competitive EMG-based gaming platform as a demonstration of the principles of sensorimotor neural engineering. Proceedings of the 43rd Annual Society for Neuroscience conference, San Diego, CA, November, 2013.

[8] JD Olson, **JD Wander**, K Weaver, DP Sarma, F Darvas, JG Ojemann (2014). Electrophysiological representation of proprioception in the cerebral cortex. Proceedings of the Annual meeting of the Association for Academic Physiatrists, Nashville, TN, February, 2014.

[9] **JD Wander**, RPN Rao, JG Ojemann (2014). Multi-region goal inference improves performance in an invasive brain-computer interface task. 1st Annual Neurofutures conference, Seattle, WA, June, 2014.

[10] **JD Wander**, D Sarma, K Weaver, RPN Rao, JG Ojemann, F Darvas. Non-linear cortical interactions during brain-computer interface use. Proceedings of the 44th Annual Society for Neuroscience conference, Washington, DC November, 2014.

[11] Sarma D, Wu J, Kumar V, **Wander JD**, Blakely TM, Todorov E, Ojemann JG, Rao RPN. Novel electrocorticographic brain-computer interface framework for dexterous robotic control. Proceedings of the 44th Annual Society for Neuroscience conference, Washington, DC November, 2014.

INVITED PRESENTATIONS

[1] Multiple workshops at the 1st annual Indian Winter School and Conference on Computational Aspects of Neural Engineering. Indian Institute of Science, Bangalore, India. December, 2012.

[2] "Improving functionality of semi-invasive brain-computer interfaces through novel input and output pathways" Research Seminar Series – Neurodevelopmental Disorders Research Consortium, Center for Integrated Brain Research, Seattle, WA. November, 2013.

[3] "Advances in semi-invasive brain-computer interfaces at the University of Washington" International Workshop for the Cognitive Development of Friendly Robotics, Italian Institute of Technology, Genoa, Italy. December, 2013.

HONORS

1st Place, 1st annual CSNE Tech Sandbox Competition	2013
Advanced to Investment round, UW Business Plan Competition	2012
UW Computational Neuroscience Training Grant	2012 – 2013
UW Center for Sensorimotor Neural Engineering Seed Grant	2011
NCSU Electrical Engineering Department and Computer Engineering Department Valedictorian	2005
NCSU Lockheed Martin, Progress Energy, & John Deere Scholar	2001 – 2005
National Merit Scholar	2000

MEMBERSHIPS

Member, American Heart Association (2015 - Present)
Member, Society for Neuroscience (2010 – 2015)
Vice President, Center for Sensorimotor Neural Engineering Student Leadership Team (2012 – 2014)
Vice-president of Marketing, UW Science and Engineering Business Association (2011 – 2013)
Member, Neural Engineering Outreach Program (2011 – 2012)

OTHER SKILLS, INTERESTS AND CERTIFICATIONS

An avid woodworker; Fluent in Spanish; GAMP4 and NEC2005 trained; Proficient with MATLAB, C#, Java, C++, C; familiar with Perl and PHP; Experienced in Android OS device development; Expert in MATLAB biosignal analysis; Proficient with AutoCAD, Adobe Create Suite, the Eclipse IDE, Microsoft Visual Studio, Microsoft Office Suite, GIMP, SketchUp and Tucker Davis RpvdsEX/OpenEx; Enjoys motorcycle riding, snowboarding, climbing, and fishing; Toured the Eastern US as a professional musician.