

Curriculum Vitae

Jörn Diedrichsen

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Citizenship: Germany

Education

University of Göttingen, Germany Diplom. Psychology. Advisor: Steffen Werner, Ph.D.	10/1993 – 12/1998
University of California, Berkeley, California Ph.D. Psychology / Cognitive Neuroscience. Advisor: Richard B. Ivry, Ph.D. M.S. Statistics. Advisor: David Brillinger, Ph.D.	01/1999 – 06/2003
Johns Hopkins University, Maryland Postdoctoral training. Advisor: Reza Shadmehr, Ph.D.	07/2003 – 05/2006

Academic Positions

Lecturer, School of Psychology, University of Wales	6/2006 - present
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Awards and Fellowships

American Psychological Association (APA) Distinguished Scientific Award for Early Career Contribution to Psychology in the area of Perception, Motor Performance, 2007	
Fellowship, German National Scholarship Foundation (Studienstiftung des deutschen Volkes)	06/1995 – 12/1999
Fellowship, Educational Abroad Program (EAP)	08/1996 – 08/1997

Professional Societies

Society for Neuroscience
Society for the Neural Control of Movement
Organization for Human Brain Mapping
Association for Psychological Science

Other Professional Experience

Consulting Editor for Journal of Motor Behavior.
Co-Editor for Computational Neuroscience for Experimental Brain Research
Co-Director of the Bangor Imaging Unit (since January 2008)
Ad-hoc reviewer (among others) Nature Neuroscience, Journal of Neurophysiology, Brain, Journal of Cognitive Neuroscience, Quarterly Journal of Experimental Psychology, Journal of Experimental Psychology, Psychological Science, Journal of Neuroscience, Science

Current Grant Support

Biotechnology and Biological Sciences Research Council (BBSRC): *Coordinating movements using Optimal Control: A Neuro-computational Perspective*. (BB/E009174/1). Start date: 6/07. Principle Investigator. £356,000 over 3 yrs.

National Science Foundation (NSF). *The Cerebellum as a State-Estimator for the Coordination of Skilled action* (BSC 0726685). Start date: 9/07. Co-PI (Principle Investigator is Dr. Richard Ivry at UC Berkeley). Bangor part is \$284,733 over 3 yrs.

Grant by the National Institutes of Health (NSF): *Motor Learning and Memory in Health and Disease* (2R56NS037422-09A1). Start date: 9/07. Co-PI (Principle Investigator is Dr. Reza Shadmehr at Johns Hopkins University). Bangor part is \$9936 for 1 yr.

Publications

Peer-reviewed Publications

- Diedrichsen J.**, Ivry, R.B., Cohen, A., Danziger, S. (2000). Asymmetries in a Unilateral Flanker Task Depend on the Direction of the Response: The Role of Attentional Shift and Perceptual Grouping. *Journal of Experimental Psychology: Human Perception and Performance*, 1, 113-126.
- Diedrichsen, J.**, Hazeltine, E., Kennerley, S., Ivry, R. B. (2001). Moving to directly cued locations abolishes spatial interference during bimanual actions. *Psychological Science*, 12, 493-498.
- *Kennerley, S., ***Diedrichsen, J.**, Hazeltine, E., Semjen, A., & Ivry, R. B. (2002). Callosotomy patients exhibit temporal and spatial uncoupling during continuous bimanual movements. *Nature Neuroscience*, 5(4), 376-381.
- Werner, S., **Diedrichsen, J.** (2002). The time course of spatial memory distortions. *Memory and Cognition*, 30, 718-730.
- Ivry, R.B., Spencer, R.M., Zelaznik, H.N., & **Diedrichsen, J.** (2002). The cerebellum and event timing. *Annals of the New York Academy of Sciences*, 978, 302-317.
- Diedrichsen, J.**, Verstynen, T., Hon, A., Lehman, S. L., & Ivry, R. B. (2003). Anticipatory adjustments in the unloading task: Is an efference copy necessary for learning? *Experimental Brain Research*, 148, 272-276.
- Hazeltine, E., **Diedrichsen, J.**, Kennerley, S., & Ivry, R. B. (2003). Bimanual cross-talk during reaching movements is primarily related to response selection, not the specification of motor parameters. *Psychological Research*, 67, 56-70.
- Diedrichsen, J.**, Ivry, R. B., Hazeltine, E., Kennerley, S., & Cohen, A. (2003). Bimanual interference associated with the selection of target locations. *Journal of Experimental Psychology: Human Perception & Performance*, 29(1), 64-77.
- Spencer, R., Zelaznik, H., **Diedrichsen, J.**, & Ivry, R.B. (2003). Disrupted timing in discontinuous but not continuous movements by cerebellar lesions. *Science*, 300, 1437-1439.
- Schmidt, T., Werner, S., & **Diedrichsen, J.** (2003). Spatial distortions induced by multiple visual landmarks: how local distortions combine to produce complex distortion patterns. *Perception & Psychophysics*, 65(6), 861-873.
- Diedrichsen, J.**, Hazeltine, E., Nurss, W., & Ivry, R. B. (2003). The role of the corpus callosum in the coupling of bimanual isometric force pulses. *Journal of Neurophysiology*, 90(4), 2409-2418.
- Diedrichsen, J.**, Werner, S., Schmidt, T., Trommershäuser, J. (2004). Immediate spatial distortions of pointing movements induced by visual landmarks. *Perception & Psychophysics*, 66(1), 89-103.
- Diedrichsen, J.**, Nambisan, R., Kennerley, S., & Ivry, R. B. (2004). Independent on-line control of the two hands during bimanual reaching. *European Journal of Neuroscience*, 19, 1643-1652.
- Diedrichsen, J.**, Verstynen, T., Lehman, S. L., & Ivry, R. B. (2005). Cerebellar involvement in anticipating the consequences of self-produced actions during bimanual movements. *J Neurophysiol*, 93(2), 801-812.
- *Verstynen, T., ***Diedrichsen, J.**, Albert, N., Aparicio, P., & Ivry, R. B. (2005). Ipsilateral motor cortex activity during unimanual hand movements relates to task complexity. *Journal of Neurophysiology*, 93(3), 1209-1222.
- Aparicio, P., **Diedrichsen, J.**, & Ivry, R. B. (2005). Effects of focal basal ganglia lesions on timing and force control. *Brain and Cognition*, 58(1), 62-74.

* shared first authorship

- Diedrichsen, J., & Shadmehr, R.** (2005). Detecting and adjusting for artifacts in fMRI time series data. *Neuroimage*, 27(3), 624-634.
- Diedrichsen, J., Hashambhoy, Y. L., Rane, T., & Shadmehr, R.** (2005). Neural correlates of reach errors. *Journal of Neuroscience*, 25(43), 9919-9931.
- Mayr, U., **Diedrichsen, J.**, Ivry, R., & Keele, S. W. (2006). Dissociating Task-set Selection from Task-set Inhibition in the Prefrontal Cortex. *J Cogn Neurosci*, 18(1), 14-21.
- Diedrichsen, J., Grafton, S., Albert, N., Hazeltine, E., & Ivry, R. B.** (2006). Goal-Selection and Movement-Related Conflict during Bimanual Reaching Movements. *Cerebral Cortex*.
- Vaziri, S., **Diedrichsen, J.**, & Shadmehr, R. (2006). Why does the brain predict sensory consequences of oculomotor commands? Optimal integration of the predicted and the actual sensory feedback. *Journal of Neuroscience*, 26(16), 4188-4197.
- Diedrichsen, J.** (2006). A spatially unbiased atlas template of the human cerebellum. *Neuroimage*, 33(1), 127-138.
- Sternad, D., Wei, K., **Diedrichsen, J.**, & Ivry, R. B. (2007). Intermanual interactions during initiation and production of rhythmic and discrete movements in individuals lacking a corpus callosum. *Exp Brain Res*, 176(4), 559-574.
- Verstynen, T., Spencer, R., Stinear, C. M., Konkle, T., **Diedrichsen, J.**, Byblow, W. D., et al. (2007). Ipsilateral corticospinal projections do not predict congenital mirror movements: A case report. *Neuropsychologia*, 45(4), 844-852.
- Tseng, Y. W., **Diedrichsen, J.**, Krakauer, J. W., Shadmehr, R., & Bastian, A. J. (2007). Sensory prediction errors drive cerebellum-dependent adaptation of reaching. *J Neurophysiol*, 98(1), 54-62.
- Diedrichsen, J., Verstynen, T., Hon, A., Zhang, Y., & Ivry, R. B.** (2007). Illusions of force perception: the role of sensori-motor predictions, visual information, and motor errors. *J Neurophysiol*, 97(5), 3305-3313.
- Diedrichsen, J., Criscimagna-Hemminger, S. E., & Shadmehr, R.** (2007). Dissociating timing and coordination as functions of the cerebellum. *J Neurosci*, 27(23), 6291-6301.
- Diedrichsen, J.** (2007). Optimal Task-dependent changes in bimanual feedback control and adaptation. *Current Biology*.
- Srimal, R., **Diedrichsen, J.**, Ryklin, E. B., & Curtis, C. E. (2008). Obligatory adaptation of saccade gains. *J Neurophysiol*.
- Grafton, S. T., Schmitt, P., Van Horn, J., & **Diedrichsen, J.** (2008). Neural substrates of visuomotor learning based on improved feedback control and prediction. *Neuroimage*, 39(3), 1383-1395.

Commentaries and Replies

- Prinzmetal, W., **Diedrichsen, J.**, & Ivry, R. B. (2001). Illusory conjunctions are alive and well: A reply to Donk (1999). *Journal of Experimental Psychology: Human Perception & Performance*, 27(3), 538-541.
- Diedrichsen, J.**, & Hazeltine, E. (2001). Unifying by binding: will binding really bind? A commentary on Hommel et al. (2001). *Behavioral & Brain Sciences*, 24, 884-885.
- Diedrichsen, J., Hazeltine, E., & Ivry, R. B.** (2004). Reply to Derakhshan, I: Hugo Liepmann revisited, this time with numbers. *Journal of Neurophysiology*, 91(6), 2934-2935.

Proceedings, Theses and Book Chapters

- Diedrichsen, J.** (1998). *Gibt es ein motorisches Kurzzeitgedächtnis für Positionen im Greifraum? [Is there a motor short-term memory for positions in grasping space?]*. Unpublished diploma thesis, University of Göttingen, Germany.
- Diedrichsen, J., Hazeltine, E., Ivry, R., Kennerley, S., & Spencer, B.** (2002). Comparing continuous and discrete movements with fMRI. *Annals of the New York Academy of Sciences*, 978, 509-510.
- Diedrichsen, J., Ivry, R. B., & Pressing, J.** (2003). Cerebellar and basal ganglia contributions to interval timing. W. H. Meck (Ed.), *Functional and neural mechanisms of interval timing*. Boca Raton, FL: CRC Press.

Diedrichsen, J. (2003). *The Neural Control of Anticipatory Postural Adjustments during Bimanual Movements*. Unpublished Dissertation, University of California, Berkeley, CA.

Ivry, R. B., **Diedrichsen, J.**, Spencer, R. M., Hazeline, E., & Semjen, A. (2004). *A cognitive neuroscience perspective on bimanual coordination and interference*. In S. Swinnen & J. Duysens (Eds.), *Interlimb Coordination* (pp. 259-295). Boston: Kluwer Academic Publishing.

Selected Recent Invited Talks / Abstracts

Diedrichsen, J. (2006). *Compensatory and integrative aspects of bimanual coordination*. Invited talk at the “Action Club”, Penn state, PA.

Diedrichsen, J. (2006). *What is the role of the cerebellum in coordination?* Invited Talk at the premeeting “Neural Control of abnormal movement”. Key Biscane, Florida.

Diedrichsen, J. (2006). *The role of state-estimation in coordination of movements*. Invited Talk at the Workshop “Bridging the Gap”. Rauschingsholzhausen, Germany.

Diedrichsen, J. (2007). *Errors, internal models and learning*. Invited Talk at Departmental colloquium, School of Psychology, University of Nottingham, UK.

Diedrichsen, J. (2007). *How Errors drive learning*. Invited Talk at the Nijmegen Institute for Cognition and information, NL.

Diedrichsen, J. (2007). *On the task-dependency and plasticity of bimanual coordination*. Craik Club, Cambridge University, UK.

Diedrichsen, J. (2007). *The coordination of complex movement*. Talk at workshop “Advances in computational motor control”. San Diego, CA.

Diedrichsen J. (2007). *Studying motor learning using functional MRI*. Talk at Department for functional Imaging, Oxford University, UK.

Diedrichsen J. (2008). *Bimanual coordination and the flexibility of control*. Talk at the Department colloquium at the Max-Planck Institute for Cognitive and Brain Sciences, Germany.

Diedrichsen J. (2008). *Bimanual coordination and the flexibility of control*. Talk at the Department colloquium at the Psychology Department in Durham, UK.