

Paul L. Gribble, Ph.D.

Professor

Department of Psychology
Western University, WIRB 3190
London, ON N6A 3K7
Canada

+1 (519) 661-2111 ext. 82237
pgribble@uwo.ca
<https://www.gribblelab.org>

Areas of specialization

Human motor control, motor learning, sensorimotor adaptation, computational models

Appointments held

- 2024- Director, Graduate Program in Neuroscience, Schulich School of Medicine & Dentistry, Western University, London ON, Canada
 - 2011- Professor, Western University*, London ON, Canada
 - 2012-23 Senior Scientist, Haskins Laboratories/Yale University, New Haven CT, USA
 - 2006-11 Associate Professor, Western University*, London ON, Canada
 - 2000-6 Assistant Professor, Western University*, London ON, Canada
- * *joint appointment in Dept. Psychology and Dept. Physiology & Pharmacology*

Education

- 1999 PH.D. Psychology, McGill University, Montréal QC, Canada
Supervisor: David Ostry
- 1995 M.Sc. Psychology, McGill University, Montréal QC, Canada
Supervisor: David Ostry
- 1993 B.Sc. (HON.) Cognitive Science, Queen's University, Kingston ON, Canada
Supervisor: Kevin Munhall & Susan Lederman

Research Positions

- 1999 MRC Postdoctoral Fellow, Dept. Anatomy & Cell Biology, Queen's University
Supervisor: Stephen Scott
- 1994 France-Québec Researcher, Institute de la Communication Parlée, Grenoble, France
Supervisors: Pascal Perrier & Rafael Laboissière
- 1993 Research Engineer, ATR Human Information Processing Laboratories, Japan
Supervisor: Eric Vatikiotis-Bateson

Lab Members

POSTDOCTORAL FELLOWS

- 2019-23 Olivier Codol (PhD Univ. Birmingham, UK)
- 2018-21 Chris Forgaard (PhD UBC, Canada)
- 2014-20 Jeff Weiler (PhD Western Univ., Canada) (co-supervised with Andrew Pruszynski)
- 2013-17 Joshua Cashaback (PhD McMaster Univ., Canada)
- 2012-13 Jeremy Wong (PhD Western Univ., Canada)
- 2007-11 Dinant Kistemaker (PhD Vrije Univ. Amsterdam)
- 2005-7 Nicole Malfait (PhD McGill Univ., Canada)
- 2003-7 Liana Brown (PhD Penn State Univ., USA) (co-supervised with Mel Goodale)

PHD STUDENTS

- 2024- Paul Tilley (Neuroscience)
- 2016-21 Susan Coltman (Neuroscience)
- 2016-21 Dimitri Palidis (Neuroscience)
- 2016-21 Nicola Popp (Neuroscience) (co-supervised with Jörn Diedrichsen)
- 2015-21 Rodrigo Maeda (Neuroscience) (co-supervised with Andrew Pruszynski)
- 2011-18 Heather McGregor (Neuroscience)
- 2007-12 Jeremy Wong (Neuroscience)
- 2004-8 Nicholas Cothros (Neuroscience)
- 2002-9 Derek Debicki (Neuroscience/MD) (co-supervised with Jon Hore)

MSc STUDENTS

- 2024- Julia Cunningham (Neuroscience)
- 2024- Alice Tan (Neuroscience) (co-supervised with Andrew Pruszynski)
- 2022-24 Pranshu Malik (Neuroscience) (co-supervised with Andrew Pruszynski)
- 2020-22 Natalia Mangos (Neuroscience)
- 2020-22 Heba Hussian (Neuroscience)
- 2020-22 Peyman Heidari (Neuroscience)
- 2011-13 Alvin Chin (Neuroscience)
- 2007-9 Elizabeth Wilson (Neuroscience)
- 2005-7 Jeremy Wong (Neuroscience)
- 2002-4 Nicholas Cothros (Neuroscience)
- 2000-2 Derek Debicki (Neuroscience) (co-supervised with Jon Hore)

BSc STUDENTS

- 2024-25 William Naylen Sorrell (Neuroscience)
- 2022-23 Shruthi Sundararaman (Physiology)
- 2022-23 Omar Dabash (Physiology)
- 2021-22 Mudia Iyayi (Physiology)
- 2021-22 Michael Grace (Physiology)
- 2021-22 Cheryl Zhou (Physiology)
- 2020-21 Kevin Sun (Physiology)

2020-21 Harvey Lee (Neuroscience)
2019-20 Natalia Mangos (Physiology)
2018-19 Elliot Polster (Physiology)
2018-19 Avneet Sandhu (Psychology)
2016-17 Chris Lao (Physiology)
2015-16 Cricia Rinchon (Neuroscience)
2015-17 Calvin Diep (Physiology)
2014-15 Anthony Wong (Physiology)
2014-15 Henry Pun (Physiology)
2013-14 Meghan Bhatia (Physiology)
2012-13 Eric Rocca (Physiology)
2012-13 Dan Huynh (Physiology)
2011-12 Brandon Belbeck (Physiology)
2010-11 Stephanie Williams (Physiology)
2010-11 Alvin Chin (Physiology)
2009-10 Seth Climans (Physiology)
2008-9 Alexandra Williams (Physiology)
2008-9 Nikolai Whyte (Physiology)
2004-5 Jeremy Wong (Physiology)
2004-5 Erin Skinner (Physiology)
2004-5 Alison Firestone (Physiology)
2003-4 Andrew Mattar (Physiology)
2003-4 Erin Dickie (Physiology)
2002-3 Dorianne Butler (Physiology)
2001-2 Lucy Mullin (Physiology)

OTHER

2023-24 Mahdiyar Shahbazi (Research Associate)
2023-24 William Naylen Sorrell (Independent research project)
2023-24 Edward Wang (Research Assistant)
2022-23 Natalia Mangos (Research Associate)
2020-22 Grace Huang (Scholar's Elective program)
2017 Xin Yue Xie (Work Study)
2013-15 Ayman Mohatarem (Work Study)
2001 Kashta Dolphin (Independent research project)

Publications

Google Scholar profile: <https://scholar.google.com/citations?user=kACnRf8AAAAJ>

PUBLISHED PAPERS

Shahbazi M, Codol O, Michaels JA, Gribble PL (2025) A Context-Free Model of Savings in Motor Learning. *bioRxiv* 2025.03.26.645562

2024 Michaels JA, Kashafi M, Zheng J, Codol O, Weiler J, Kersten R, Gribble PL, Diedrichsen J, Pruszynski JA (2024) Sensory expectations shape neural population dynamics in motor

- circuits. *bioRxiv* 2024.12.22.629295
- Mangos N, Forgaard CJ, Gribble PL (2024) Durability of Motor Learning by Observing. *J Neurophysiol*. 132, 1025–1037
- 2023 Codol O, Michaels JA, Kashefi M, Pruszynski JA, Gribble PL (2023) MotorNet: a Python toolbox for controlling differentiable biomechanical effectors with artificial neural networks. *eLife* 12:RP88591
- Codol O, Kashefi M, Forgaard CJ, Galea JM, Pruszynski JA, Gribble PL (2023) Sensorimotor feedback loops are selectively sensitive to reward. *eLife* 12:e81325
- 2022 Codol O, Gribble PL, Gurney KN. (2022) Differential dopamine receptor-dependent sensitivity improves the switch between hard and soft selection in a model of the basal ganglia. *Neural Computation* 34:1588-1615
- Popp, NJ, Hernandez-Castillo, CR, Gribble, PL & Diedrichsen, J (2022) The role of feedback in the production of skilled finger sequences. *J Neurophysiol* 127, 829–839
- 2021 Coltman, SK, van Beers, RJ, Medendorp, WP & Gribble, PL (2021) Sensitivity to error during visuomotor adaptation is similarly modulated by abrupt, gradual, and random perturbation schedules. *J Neurophysiol* 126, 934–945
- Palidis, DJ, McGregor, HR, Vo, A, MacDonald, PA & Gribble, PL (2021) Null effects of levodopa on reward- and error-based motor adaptation, savings, and anterograde interference. *J Neurophysiol* 126, 47–67
- Weiler, J, Gribble, PL & Pruszynski, JA (2021) Spinal stretch reflexes support efficient control of reaching. *J Neurophysiol* 125, 1339–1347
- 2020 Coltman, SK & Gribble, PL (2020) Time course of changes in the long-latency feedback response parallels the fast process of short-term motor adaptation. *J Neurophysiol* 124, 388–399
- Maeda, RS, Gribble, PL & Pruszynski, JA (2020) Learning New Feedforward Motor Commands Based on Feedback Responses. *Curr Biol* 30, 1941–1948.e3
- Maeda, RS, Zdybal, JM, Gribble, PL & Pruszynski, JA (2020) Generalizing movement patterns following shoulder fixation. *J Neurophysiol* 123, 1193–1205
- Palidis, DJ & Gribble, PL (2020) EEG correlates of physical effort and reward processing during reinforcement learning. *J Neurophysiol* 124, 610–622
- Popp, NJ, Yokoi, A, Gribble, PL & Diedrichsen, J (2020) The effect of instruction on motor skill learning. *J Neurophysiol* 124, 1449–1457
- 2019 Cashaback, JGA, Lao, CK, Palidis, DJ, Coltman, SK, McGregor, HR & Gribble, PL (2019) The gradient of the reinforcement landscape influences sensorimotor learning. *PLoS Comput Biol* 15, e1006839
- Coltman, SK, Cashaback, JGA & Gribble, PL (2019) Both fast and slow learning processes contribute to savings following sensorimotor adaptation. *J Neurophysiol* 121, 1575–1583
- Gu, C, Pruszynski, JA, Gribble, PL & Corneil, BD (2019) A rapid visuomotor response on the

- human upper limb is selectively influenced by implicit motor learning. *J Neurophysiol* 121, 85–95
- Ohashi, H, Gribble, PL & Ostry, DJ (2019) Somatosensory cortical excitability changes precede those in motor cortex during human motor learning. *J Neurophysiol* 122, 1397–1405
- Ohashi, H, Valle-Mena, R, Gribble, PL & Ostry, DJ (2019) Movements following forcefield adaptation are aligned with altered sense of limb position. *Exp Brain Res* 237, 1303–1313
- Palidis, DJ, Cashaback, JGA & Gribble, PL (2019) Neural signatures of reward and sensory error feedback processing in motor learning. *J Neurophysiol* 121, 1561–1574
- Weiler, J, Gribble, PL & Pruszynski, JA (2019) Spinal stretch reflexes support efficient hand control. *Nat Neurosci* 22, 529–533
- 2018 Gu, C, Pruszynski, JA, Gribble, PL & Corneil, BD (2018) Done in 100 ms: path-dependent visuomotor transformation in the human upper limb. *J Neurophysiol* 119, 1319–1328
- Maeda, RS, Cluff, T, Gribble, PL & Pruszynski, JA (2018) Feedforward and Feedback Control Share an Internal Model of the Arm's Dynamics. *J Neurosci* 38, 10505–10514
- McGregor, HR, Cashaback, JGA & Gribble, PL (2018) Somatosensory perceptual training enhances motor learning by observing. *J Neurophysiol* 120, 3017–3025
- McGregor, HR, Vesia, M, Rinchon, C, Chen, R & Gribble, PL (2018) Changes in corticospinal excitability associated with motor learning by observing. *Exp Brain Res* 236, 2829–2838
- Weiler, J, Gribble, PL & Pruszynski, JA (2018) Rapid feedback responses are flexibly coordinated across arm muscles to support goal-directed reaching. *J Neurophysiol* 119, 537–547
- 2017 Cashaback, JGA, McGregor, HR, Mohatarem, A & Gribble, PL (2017) Dissociating error-based and reinforcement-based loss functions during sensorimotor learning. *PLoS Comput Biol* 13, e1005623
- Cashaback, JGA, McGregor, HR, Pun, HCH, Buckingham, G & Gribble, PL (2017) Does the sensorimotor system minimize prediction error or select the most likely prediction during object lifting? *J Neurophysiol* 117, 260–274
- Maeda, RS, Cluff, T, Gribble, PL & Pruszynski, JA (2017) Compensating for intersegmental dynamics across the shoulder, elbow, and wrist joints during feedforward and feedback control. *J Neurophysiol* 118, 1984–1997
- McGregor, HR & Gribble, PL (2017) Functional connectivity between somatosensory and motor brain areas predicts individual differences in motor learning by observing. *J Neurophysiol* 118, 1235–1243
- 2016 Gu, C, Wood, DK, Gribble, PL & Corneil, BD (2016) A Trial-by-Trial Window into Sensorimotor Transformations in the Human Motor Periphery. *J Neurosci* 36, 8273–8282
- Martin, CB, Cowell, RA, Gribble, PL, Wright, J & Köhler, S (2016) Distributed category-specific recognition-memory signals in human perirhinal cortex. *Hippocampus* 26, 423–436
- McGregor, HR, Cashaback, JGA & Gribble, PL (2016) Functional Plasticity in Somatosensory

- Cortex Supports Motor Learning by Observing. *Curr Biol* 26, 921–7
- Ostry, DJ & Gribble, PL (2016) Sensory Plasticity in Human Motor Learning. *Trends Neurosci* 39, 114–123
- Weiler, J, Saravanamuttu, J, Gribble, PL & Pruszynski, JA (2016) Coordinating longlatency stretch responses across the shoulder, elbow, and wrist during goal-directed reaching. *J Neurophysiol* 116, 2236–2249
- Wong, JD, Bobbert, MF, van Soest, AJ, Gribble, PL & Kistemaker, DA (2016) Optimizing the Distribution of Leg Muscles for Vertical Jumping. *PLoS One* 11, e0150019
- 2015 Cashaback, JGA, McGregor, HR & Gribble, PL (2015) The human motor system alters its reaching movement plan for task-irrelevant, positional forces. *J Neurophysiol* 113, 2137–49
- McGregor, HR & Gribble, PL (2015) Changes in visual and sensory-motor restingstate functional connectivity support motor learning by observing. *J Neurophysiol* 114, 677–88
- Weiler, J, Gribble, PL & Pruszynski, JA (2015) Goal-dependent modulation of the longlatency stretch response at the shoulder, elbow, and wrist. *J Neurophysiol* 114, 3242–54
- Wood, DK, Gu, C, Corneil, BD, Gribble, PL & Goodale, MA (2015) Transient visual responses reset the phase of low-frequency oscillations in the skeletomotor periphery. *Eur J Neurosci* 42, 1919–32
- 2014 Buckingham, G, Wong, JD, Tang, M, Gribble, PL & Goodale, MA (2014) Observing object lifting errors modulates cortico-spinal excitability and improves object lifting performance. *Cortex* 50, 115–24
- Kistemaker, DA, Wong, JD & Gribble, PL (2014) The cost of moving optimally: kinematic path selection. *J Neurophysiol* 112, 1815–24
- Wong, JD, Wilson, ET, Kistemaker, DA & Gribble, PL (2014) Bimanual proprioception: are two hands better than one? *J Neurophysiol* 111, 1362–8
- 2013 Kistemaker, DA, Van Soest, AJK, Wong, JD, Kurtzer, I & Gribble, PL (2013) Control of position and movement is simplified by combined muscle spindle and Golgi tendon organ feedback. *J Neurophysiol* 109, 1126–39
- 2012 Williams, A & Gribble, PL (2012) Observed effector-independent motor learning by observing. *J Neurophysiol* 107, 1564–70
- Wong, JD, Kistemaker, DA, Chin, A & Gribble, PL (2012) Can proprioceptive training improve motor learning? *J Neurophysiol* 108, 3313–21
- 2011 Debicki, DB, Gribble, PL, Watts, S & Hore, J (2011) Wrist muscle activation, interaction torque and mechanical properties in unskilled throws of different speeds. *Exp Brain Res* 208, 115–25
- Goonetilleke, SC, Gribble, PL, Mirsattari, SM, Doherty, TJ & Corneil, BD (2011) Neck muscle responses evoked by transcranial magnetic stimulation of the human frontal eye fields. *Eur J Neurosci* 33, 2155–67
- Hore, J, Debicki, DB, Gribble, PL & Watts, S (2011) Deliberate utilization of interaction torques brakes elbow extension in a fast throwing motion. *Exp Brain Res* 211, 63–72

- Wong, JD, Wilson, ET & Gribble, PL (2011) Spatially selective enhancement of proprioceptive acuity following motor learning. *J Neurophysiol* 105, 2512–21
- 2010 Brown, LE, Wilson, ET, Obhi, SS & Gribble, PL (2010) Effect of trial order and error magnitude on motor learning by observing. *J Neurophysiol* 104, 1409–16
- Debicki, DB, Watts, S, Gribble, PL & Hore, J (2010) A novel shoulder-elbow mechanism for increasing speed in a multijoint arm movement. *Exp Brain Res* 203, 601–13
- Kistemaker, DA, Wong, JD & Gribble, PL (2010) The central nervous system does not minimize energy cost in arm movements. *J Neurophysiol* 104, 2985–94
- Malfait, N, Valyear, KF, Culham, JC, Anton, JL, Brown, LE & Gribble, PL (2010) fMRI activation during observation of others' reach errors. *J Cogn Neurosci* 22, 1493–503
- Ostry, DJ, Darainy, M, Mattar, AAG, Wong, J & Gribble, PL (2010) Somatosensory plasticity and motor learning. *J Neurosci* 30, 5384–93
- Wilson, ET, Wong, J & Gribble, PL (2010) Mapping proprioception across a 2D horizontal workspace. *PLoS One* 5, e11851
- 2009 Brown, LE, Wilson, ET & Gribble, PL (2009) Repetitive transcranial magnetic stimulation to the primary motor cortex interferes with motor learning by observing. *J Cogn Neurosci* 21, 1013–22
- Cothros, N, Wong, J & Gribble, PL (2009) Visual cues signaling object grasp reduce interference in motor learning. *J Neurophysiol* 102, 2112–20
- Wong, J, Wilson, ET, Malfait, N & Gribble, PL (2009) Limb stiffness is modulated with spatial accuracy requirements during movement in the absence of destabilizing forces. *J Neurophysiol* 101, 1542–9
- Wong, J, Wilson, ET, Malfait, N & Gribble, PL (2009) The influence of visual perturbations on the neural control of limb stiffness. *J Neurophysiol* 101, 246–57
- 2008 Cothros, N, Wong, J & Gribble, PL (2008) Distinct haptic cues do not reduce interference when learning to reach in multiple force fields. *PLoS One* 3, e1990
- Malfait, N, Henriques, DY & Gribble, PL (2008) Shape distortion produced by isolated mismatch between vision and proprioception. *J Neurophysiol* 99, 231–43
- 2007 Brown, LE, Wilson, ET, Goodale, MA & Gribble, PL (2007) Motor force field learning influences visual processing of target motion. *J Neurosci* 27, 9975–83
- 2006 Cothros, N, Wong, JD & Gribble, PL (2006) Are there distinct neural representations of object and limb dynamics? *Exp Brain Res* 173, 689–97
- Cothros, N, Köhler, S, Dickie, EW, Mirsattari, SM & Gribble, PL (2006) Proactive interference as a result of persisting neural representations of previously learned motor skills in primary motor cortex. *J Cogn Neurosci* 18, 2167–76
- 2005 Debicki, DB & Gribble, PL (2005) Persistence of inter-joint coupling during singlejoint elbow flexions after shoulder fixation. *Exp Brain Res* 163, 252–7

- Malfait, N, Gribble, PL & Ostry, DJ (2005) Generalization of motor learning based on multiple field exposures and local adaptation. *J Neurophysiol* 93, 3327-38
- Mattar, AAG & Gribble, PL (2005) Motor learning by observing. *Neuron* 46, 153-60
- 2004 Darainy, M, Malfait, N, Gribble, PL, Towhidkhan, F & Ostry, DJ (2004) Learning to control arm stiffness under static conditions. *J Neurophysiol* 92, 3344-50
- Debicki, DB & Gribble, PL (2004) Inter-joint coupling strategy during adaptation to novel viscous loads in human arm movement. *J Neurophysiol* 92, 754-65
- Debicki, DB, Gribble, PL, Watts, S & Hore, J (2004) Kinematics of wrist joint flexion in overarm throws made by skilled subjects. *Exp Brain Res* 154, 382-94
- 2003 Graham, KM, Moore, KD, Cabel, DW, Gribble, PL, Cisek, P & Scott, SH. (2003) Kinematics and kinetics of multijoint reaching in nonhuman primates. *J Neurophysiol* 89, 2667-77
- Gribble, PL, Mullin, LI, Cothros, N & Mattar, A (2003) Role of cocontraction in arm movement accuracy. *J Neurophysiol* 89, 2396-405
- 2002 Gribble, PL, Everling, S, Ford, K & Mattar, A (2002) Hand-eye coordination for rapid pointing movements. Arm movement direction and distance are specified prior to saccade onset. *Exp Brain Res* 145, 372-82
- Gribble, PL & Scott, SH (2002) Method for assessing directional characteristics of nonuniformly sampled neural activity. *J Neurosci Methods* 113, 187-97
- Gribble, PL & Scott, SH (2002) Overlap of internal models in motor cortex for mechanical loads during reaching. *Nature* 417, 938-41
- 2001 Scott, SH, Gribble, PL, Graham, KM & Cabel, DW (2001) Dissociation between hand motion and population vectors from neural activity in motor cortex. *Nature* 413, 161-5
- Shiller, DM, Ostry, DJ, Gribble, PL & Laboissière, R (2001) Compensation for the effects of head acceleration on jaw movement in speech. *J Neurosci* 21, 6447-56
- Suzuki, M, Shiller, DM, Gribble, PL & Ostry, DJ (2001) Relationship between cocontraction, movement kinematics and phasic muscle activity in single-joint arm movement. *Exp Brain Res* 140, 171-81
- 2000 Gribble, PL & Ostry, DJ (2000) Compensation for loads during arm movements using equilibrium-point control. *Exp Brain Res* 135, 474-82
- 1999 Gribble, PL & Ostry, DJ (1999) Compensation for interaction torques during single and multijoint limb movement. *J Neurophysiol* 82, 2310-26
- Shiller, DM, Ostry, DJ & Gribble, PL (1999) Effects of gravitational load on jaw movements in speech. *J Neurosci* 19, 9073-80
- 1998 Feldman, AG, Ostry, DJ, Levin, MF, Gribble, PL & Mitnitski, AB (1998) Recent tests of the equilibrium-point hypothesis (λ model). *Motor Control* 2, 189-205
- Gribble, PL & Ostry, DJ (1998) Independent coactivation of shoulder and elbow muscles. *Exp Brain Res* 123, 355-60

- Gribble, PL, Ostry, DJ, Sanguineti, V & Laboissière, R (1998) Are complex control signals required for human arm movement? *J Neurophysiol* 79, 1409–24
- 1997 Ostry, DJ, Gribble, PL, Levin, MF & Feldman, AG (1997) Phasic and tonic stretch reflexes in muscles with few muscle spindles: human jaw-opener muscles. *Exp Brain Res* 116, 299–308
- Ostry, DJ, Vatikiotis-Bateson, E & Gribble, PL (1997) An examination of the degrees of freedom of human jaw motion in speech and mastication. *J Speech Lang Hear Res* 40, 1341–51
- 1996 Gribble, PL & Ostry, DJ (1996) Origins of the power law relation between movement velocity and curvature: modeling the effects of muscle mechanics and limb dynamics. *J Neurophysiol* 76, 2853–60
- Munhall, KG, Gribble, P, Sacco, L & Ward, M (1996) Temporal constraints on the McGurk effect. *Percept Psychophys* 58, 351–62
- Ostry, DJ, Gribble, PL & Gracco, VL (1996) Coarticulation of jaw movements in speech production: is context sensitivity in speech kinematics centrally planned? *J Neurosci* 16, 1570–9

BOOK CHAPTERS

- 2016 McGregor, HR & Gribble, PL (2016) Observational Motor Learning in Shared representations: Sensorimotor Foundations of Social Life (Obhi, SS & Cross, ES, eds.) 525–540 (Cambridge University Press)
- 1997 Gribble, PL, Laboissière, R & Ostry, DJ (1997) Control of Human Arm and Jaw Motion: Issues Related to Musculo-skeletal Geometry in Self-organization, Computational Maps and Motor Control (Morasso, PG & Sanguineti, V, eds.) Advances in Psychology Series 119, 483–506 (Elsevier-North Holland)

Theses

- 1999 Ph.D. “Empirical and modeling studies of multi-joint limb movement.” Dept. Psychology, McGill University, Montréal, Canada (D. Ostry, supervisor)
- 1995 M.Sc. “Musculo-skeletal geometry and the control of single degree of freedom elbow movements.” Dept. Psychology, McGill University, Montréal, Canada (D. Ostry, supervisor)
- 1993 B.Sc. (Hon.) “Effects of an altered visuo-motor feedback relationship on the kinematics of reaching movements performed under remove visual guidance.” Dept. Psychology, Queen’s University, Kingston Canada (K. Munhall & S. Lederman, supervisors)

Invited Talks

- 2019 Optimal Neuroethology of Movement and Motor Control workshop at The Banff

- International Research Station, Banff, Alberta, “The gradient of the reinforcement landscape influences sensorimotor learning”
- 2011 12th International Multisensory Research Forum, Fukuoka, Japan, “Sensory Changes Accompanying Motor Learning”
- 2010 McMaster University, Dept. Psychology, “Motor Learning by Observing”
- 2010 Université de Montréal, “Motor Learning by Observing”
- 2010 Northeastern Univ., Dept. of Biology, Electrical & Computer Engineering, and Physics, Boston, MA “Sensory Changes Accompanying Motor Learning”
- 2010 MIT, Laboratory for Biomechanics and Human Rehabilitation, Cambridge, MA “Does the Central Nervous System Minimize Energy for Planning Reaching Movements?”
- 2008 Computational Motor Control Workshop at Ben-Gurion University of the Negev, Beer-Sheva, Israel “Motor Learning by Observing”
- 2008 Centre Neurobiologie Intégrative et Adaptative, Université’ de Provence / CNRS, Marseille, France, “Motor Learning by Observing”
- 2008 Centre For Vision Research, York University, Toronto Canada, February 22 “Role of Primary Motor Cortex in Motor Learning and Motor Learning by Observing”
- 2007 Annual meeting of the North American for Psychology of Sport and Physical Activity, San Diego, CA “Motor Learning by Observing”
- 2007 University of Michigan, Division of Kinesiology Seminar Series, “Studies of Human Motor Learning”
- 2006 Annual meeting of the Society for Experimental Biology, “Neural Control of Human Limb Movements”, Canterbury, UK
- 2003 Biennial Progress in Motor Control (IV) meeting, Université de Caen Basse Normandie, “What drives adaptation during motor learning?” Caen, France
- 2003 York University, Toronto Canada, School of Kinesiology and Health Science, “Neural Control of Limb Movement: Internal Models of Dynamics”
- 2000 The University of Western Ontario, London Canada, Depts. of Psychology and Physiology, “Neural Control of Limb Movement: Computational and Empirical Approaches”
- 2000 Queen’s University, Kingston Canada, Queen’s Neuroscience Seminar Series, “Neural Control of Limb Movement: Computational and Empirical Approaches”
- 1999 Queen’s University, Kingston Canada, MRC Group in Sensory Motor Neuroscience, “Neural Control of Multi-Joint Limb Dynamics”
- 1995 ATR Human Information Processing Laboratories, Kyoto Japan, “Interpreting Movement Kinematics”

Conference Presentations

Each year since 1993, myself and members of my lab have attended the Society for Neuroscience annual meeting and the Society for the Neural Control of Movement annual meeting, where we have presented posters and sometimes given talks. Occasionally we present posters at other meetings as well. This is a very long list and is not included here.

Teaching

GRADUATE COURSES

- 2013- Psychology 9040, Scientific Computing
- 2013-19 Psychology 9041, Introduction to Statistics Using R
- 2005-13 Neuroscience 9506, Statistics for Neuroscience
- 2004-13 Neuroscience 9519, Scientific Programming & Data Analysis
- 2003-13 Neuroscience 9520, Computational Neuroscience: Neural Models

UNDERGRADUATE COURSES

- 2022- Psychology 2812, Statistics for Psychology II
- 2021-22 Psychology 4260, Sensorimotor Neuroscience
- 2020-21 Psychology 4295, Special Topics in Behavioural & Cognitive Neuroscience
- 2008-13 Psychology 2820, Research Methods & Statistical Analysis in Psychology
- 2001-2 Psychology 380, Psychological Statistics
- 2000-1 Psychology 223, Introduction to Psychobiology

Service

- 2000- *Ad-hoc reviewer* for Nature, Neuron, Current Biology, Proceedings of the National Academy of Sciences, PLoS Computational Biology, Journal of Neuroscience, Journal of Neurophysiology, Experimental Brain Research, Journal of Neuroscience Methods, Trends in Cognitive Sciences, Neural Computation, PLoS ONE, Biology Letters, Cortex, Current Opinion in Physiology, eLife
- 2005- *Program Committee*, Translational and Computational Motor Control annual meeting
- 2017- *Member*, CIHR College of Reviewers
- 2021-24 *Chair*, BS-C committee for CIHR peer review
- 2010-21 *Scientific Officer*, BS-C committee for CIHR peer review
- 2007-18 *Member*, BS-C committee for CIHR peer review
- 2008-15 *Academic Editor*, PLoS ONE
- 1994- *Member*, Society for the Neural Control of Movement
- 1994- *Member*, Society for Neuroscience

Research Funding

ACTIVE GRANTS AS PRINCIPAL INVESTIGATOR

2025-30 NSERC Discovery Grant
“Computational and Somatosensory Basis of Motor Control and Motor Learning”
\$325,000

GRANTS PREVIOUSLY HELD AS PRINCIPAL INVESTIGATOR

2022-23 Western Faculty of Social Sciences Faculty Research Development Fund
“MotorNet: artificial neural network toolbox to study the neural control of movement”
\$10,000

2018-24 NSERC Discovery Grant
“Somatosensory Basis of Human Motor Learning”
\$279,000

2018-23 CIHR Project Grant
“Sensory Motor Neuroplasticity and Motor Learning by Observing”
\$694,240

2018-21 NSERC Discovery Accelerator Supplement Award
“Somatosensory Basis of Human Motor Learning”
\$120,000

2017-18 CIHR Project Grant
“Sensory Motor Neuroplasticity and Motor Learning by Observing”
\$100,000

2013-18 NSERC Discovery Grant
“Control of human arm movement”
\$200,000

2016-17 Western University Internal Award
“Sensorimotor Neuroplasticity and Motor Learning by Observing”
\$25,000

2015-17 Western University
Faculty scholar’s award
\$14,000

2010-15 CIHR Open Operating Grant
“Motor learning and sensory systems”
\$547,280

2013-14 Western ADF Internal Grant
“Brain networks for observational motor learning”
\$8,400

- 2012-13 NSERC Discovery Grant
“Control of human arm movements”
\$31,000
- 2010-11 NSERC Research Tools & Infrastructure Grant
“Robotic exoskeleton and integrated eye tracker”
\$146,236
- 2007-12 NSERC Discovery Grant
“Cognitive and sensory basis of motor learning”
\$155,300
- 2007-10 NSERC Discovery Grant Accelerator Award
“Cognitive and sensory basis of motor learning”
\$120,000
- 2005-10 CIHR Open Operating Grant
“Computational mechanisms of motor learning”
\$338,670
- 2003-7 Premier’s Research Excellence Award (Ontario)
“Neural and cognitive mechanisms of motor learning”
\$150,000
- 2002-5 CIHR New Investigator Salary Award
“Computational mechanisms of motor learning”
\$250,000
- 2002-5 CIHR Open Operating Grant
“Computational mechanisms of motor learning”
\$216,000
- 2001-6 NSERC Discovery Grant
“Multi-joint limb movement and motor learning”
\$97,500
- 2001-3 Canada Foundation for Innovation & Ontario Innovation Trust
“Multidisciplinary approaches to cognitive neuroscience”
\$659,293
- 2001-2 Western ARA Internal Grant
“Motor learning pilot project”
\$3,000
- 2001-2 NSERC Research Tools & Infrastructure Grant
“Equipment to support motor learning studies”
\$48,968

GRANTS PREVIOUSLY HELD AS CO-APPLICANT

- 2019-24 NIDCD R01DC017439
“Sensory Basis for Speech Motor Learning”, D. Ostry (PI)

USD\$1,726,655

- 2012-17 NICHD R01HD075740
“Training-induced plasticity in human motor and sensory systems”, D. Ostry (PI)
USD\$1,880,455
- 2015-16 NSERC Research Tools & Infrastructure Grant
“A portable system for integrated measurement of human actions”, B. Corneil (PI)
\$139,655
- 2010-11 NSERC Research Tools & Infrastructure Grant
“Transcranial magnetic stimulation for research in cognitive neuroscience”, M. Goodale (PI)
\$98,178
- 2005-10 NICHD R01HD048924
“Motor control of human arm stiffness”, D. Ostry (PI)
USD\$1,053,000
- 2007-10 CIHR Open Operating Grant
“Cerebellar control of overarm throwing”, J. Hore (PI)
\$268,575
- 2004-9 CIHR Group Grant
“Neural transformations for perception and action”, M. Goodale (PI)
\$2,272,200
- 2001-6 CIHR Open Operating Grant
“Cerebellar control of throwing”, J. Hore (PI)
\$610,438

Awards

- 2015 Faculty Scholar Award, Western University
2003 Ontario Premier’s Research Excellence Award
2002 CIHR New Investigator Award
1999 MRC Postdoctoral Fellowship
1998 NSERC PGS-B Postgraduate Scholarship

1 April, 2025