Spencer Arbuckle
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Education

2016–21	Ph.D. Neuroscience	Western University	advisors: Jörn Diedrichsen, Andrew Pruszynski
2010–14	B.Sc. Hon. Psychology	Queen's University	advisor: Ingrid Johnsrude

Awards & Scholarships

2020	Western University Neuroscience Research Day top poster award ($100 CAD)
2019	DPZ Primate Systems Neuroscience Summer School Travel Award (€500)
2018–21	NSERC Postgraduate Scholarship – Doctoral award ($63,000 CAD)
2018–19	Ontario Graduate Scholarship ($15,000 CAD) – *declined*
2017	Western University Neuroscience Conference Travel Award ($500 CAD)
2017	Computational Sensorimotor Neuroscience (*CoSMo*) Summer School – Best project
2017	Brain Canada Travel Scholarship to attend *CoSMo* Summer School ($1,500 CAD)
2013–14	Queen's University Dean's Honour List
2010	Queen's University Academic Excellence Entrance Scholarship ($1500 CAD)
2010	University of Winnipeg Special Entrance Scholarship ($1750 CAD) – *declined*

Grants & Funding

2022–23	Ontario Micro-credentials Challenge Fund, Community Impact Award. Role: collaborator. *Neurotechnology Micro-credential Program.* ($973,563 CAD)
2017–18	Brain & Mind Institute, Collaborative Research Grant. Role: co-applicant. *Cortical representations of finger flexion & extension movements.* ($2,296 CAD)

Publications [google scholar profile]

[8] **Arbuckle SA**. (2021) Brain representations of dexterous hand control: Investigating the functional organization of individuated finger movements and somatosensory integration. Western University (*PhD thesis)*

[7] **Arbuckle SA**, Pruszynski JA, Diedrichsen J. (2021) Mapping the integration of sensory information across fingers in human sensorimotor cortex. bioXriv *(preprint; in revision at Journal of Neuroscience)*

[6] Fox AS, Holley D, Klink PC, **Arbuckle SA**, Barnes CA, Diedrichsen J, Kwok SC, Kyle C, Pruszynski JA, Seidlitz J, Zhou X, Poldrack RA, Gorgolewski KJ. (2021) Sharing voxelwise neuroimaging results from rhesus monkeys and other species with Neurovault. NeuroImage 225: 117518.

[5] **Arbuckle SA**, Weiler J, Kirk EA, Rice CL, Schieber MH, Pruszynski JA, Ejaz N, Diedrichsen J. (2020) Structure of population activity in primary motor cortex for single finger flexion and extension. Journal of Neuroscience 40: 9210-9223.

[4] **Arbuckle SA**, Yokoi A, Pruszynski JA, Diedrichsen J. (2019) Stability of representational geometry across a wide range of fMRI activity levels. NeuroImage 186: 155-163.

[3] Yokoi A, **Arbuckle SA**, Diedrichsen J. (2018) The role of human primary motor cortex in the production of skilled finger sequences. Journal of Neuroscience 38: 1430-1442.

[2] Diedrichsen J, Yokoi A, **Arbuckle SA**. (2018) Pattern Component Modeling: A flexible approach for understanding the representational structure of brain activity patterns. NeuroImage 180: 119-133.

[1] Lambert C, **Arbuckle SA**, Holden R. (2016) The Marlow-Crowne Social Desirability Scale outperforms the BIDR Impression Management Scale for identifying fakers. Journal of Research in Personality 61: 80-86.

Invited Talks

10/2021 How to give short and effective science talks. Society for Neuroscience Graduate Students, Western University, Canada.

11/2020 Cortical contributions in human hand control. Be.Neuro Lab, Dept. of Bioengineering, Imperial College London, UK.

03/2018 Can fMRI be used to make inferences on neural representations? Dept. of Cognitive, Linguistic, & Psychological Sciences, Brown University, USA.

04/2017 An introduction to pattern component modeling. BLAM Lab, Dept. of Neurology, Johns Hopkins University School of Medicine, USA.

Conference Talks

[5] **Arbuckle SA***, Pruszynski JA, Diedrichsen J. (2020) Integration of tactile information from multiple fingers in human primary sensory cortex measured using high-resolution fMRI. Robarts Research Retreat, London, Canada.

[4] **Arbuckle SA**, Weiler J, Kirk EA, Saikaley M, Rice C, Schieber M, Diedrichsen J, Ejaz N*. (2018) Representation of fingers and finger movement direction in the primary motor cortex. Society for the Neural Control of Movement, Santa Fe, USA.

[3] Liu M*, **Arbuckle SA**, Okorokova L, Herrera* A, Kaiser A. (2017) Does S1 spiking activity encode sensory feedback for goal-directed movements in a grasping task? Advances in Motor Learning & Motor Control, Washington D.C., USA.

[2] **Arbuckle SA***, Weiler J, Kirk EA, Saikaley M, Rice C, Schieber M, Diedrichsen J, Ejaz N. (2017) Extension and flexion representations in M1 spatially cluster around the moving finger. Advances in Motor Learning & Motor Control, Washington D.C., USA.

[1] Ritz H, **Arbuckle SA**, Wild C, Johnsrude I.* (2015) Enhanced recognition memory for acoustically degraded sentences. 39th MidWinter Meeting of the Association for Research in Otolaryngology, San Diego, USA.

**indicates primary speaker*

Conference Posters

[7] **Arbuckle SA***, Pruszynski JA, Diedrichsen J. (2020) Integration of tactile information from multiple fingers in human primary sensory cortex measured using high-resolution fMRI. Neuroscience Research Day, London, Canada. *top poster award*

[6] **Arbuckle SA***, Pruszynski JA, Diedrichsen J. (2019) Integration of tactile information from multiple fingers in human primary sensory cortex measured using high-resolution fMRI. Society for Neuroscience, Chicago, USA.

[5] **Arbuckle SA***, Weiler J, Kirk EA, Saikaley M., Rice C, Schieber M, Diedrichsen J, Ejaz N. (2018) Representation of fingers and finger movement direction in the primary motor cortex. Canadian Student Health Research Forum, Winnipeg, Canada. *nominated to attend by the Western Neuroscience graduate program*

[4] **Arbuckle SA***, Weiler J, Kirk EA, Saikaley M., Rice C, Schieber M, Diedrichsen J, Ejaz N. (2018) Representation of fingers and finger movement direction in the primary motor cortex. Mechanisms of Dexterous Behaviour, HHMI Janelia, USA.

[3] **Arbuckle SA***, Yokoi A, Diedrichsen J. (2017) Is representational similarity analysis stable across a broad range of overall fMRI activity levels? Organization for Human Brain Mapping, Vancouver, Canada. *travel grant awarded*

[2] **Arbuckle SA***, Yokoi A, Diedrichsen J. (2016) Stability of representational similarity analysis across a large range of overall activation levels. Society for Neuroscience, San Diego, USA.

[1] Diedrichsen J*, **Arbuckle SA**, Yokoi, A. (2016) Studying the representational structure of simple and complex hand movements in the human motor cortex. Neural Control of Movement, Montego Bay, Jamaica.

Competitive Research Courses & Workshops

2022 Business & Consulting Seminar Series, Western GMCA, Canada.
2019 Representational Similarity Analysis 3.0 Workshop, Canada.
2019 Primate Cognitive Neuroscience Summer School, DPZ, Germany. [link]
2017 Computational Sensorimotor Neuroscience Summer School, University of Minnesota, USA. [link]

Teaching

Ten years of teaching-related experience. A curated selection is listed below:

2022–*now*	Course development lead for Neurotechnology micro-credentials	Queen's University
2020–22	Intro to Neural Networks (undergrad & graduate)- lectures	Western University
2020–21	Intro to Data Science I (undergrad & graduate)- TA	Western University
2019	Analysis of Neural Population Dynamics workshop- co-lead	Western University
2018–21	Regular presenter at the Computational Core Methods Lunches	Western University
2017	Information Systems (undergrad computer science)- TA	Western University
2016	Statistics for Science (undergrad biology)- TA	Western University
2016	Intro to Statistics (undergrad stats)- TA	Western University
2012–14	Principles of Psychology (undergrad psychology)- TA	Queen's University

Mentorship

2019–21 Master's Thesis of Deepanshu Wadhwa, Title: A generative-discriminative approach to human brain mapping. Western University, Canada
2018–20 Master's Thesis of Megha Verma, Title: Evaluating anesthetic protocols for non-human primate functional neuroimaging. Western University, Canada

Relevant Professional & Research Experience

2022–*now* **Course Development Lead** with the Neurotechnology Micro-credential Program at the Centre for Neuroscience Studies, Queen's University (Ontario, Canada)
2016–21 **Graduate Student Researcher**, Sensorimotor Systems Neuroscience labs of Dr. Jörn Diedrichsen & Dr. Andrew Pruszynski, Western University (Ontario, Canada)
2014–15 **Research Technician**, Cognitive Neuroscience labs of Ingrid Johnsrude & Stefan Köhler, Western University (Ontario, Canada)
2013–14 **Undergraduate Thesis Student**, Cognitive Neuroscience lab of Dr. Ingrid Johnsrude, Queen's University (Ontario, Canada)
2013 **Undergraduate Educational Researcher** for Dr. Ingrid Johnsrude & Dr. Jill Atkinson, Queen's University (Ontario, Canada)
2012–13 **Undergraduate Research Assistant**, Personality Assessment lab of Dr. Ronald Holden, Queen's University (Ontario, Canada)

Professional Contributions

Invited Reviewer: Journal of Neurophysiology, NeuroImage
Grant Reviewer: Swiss National Science Foundation (SNSF)
Society Membership: Society for Neuroscience

Service Roles

03/2021	Internal Reviewer for a Graduate Program Review, Western University. [link]
07/2019	Co-organized & lead a 2-day workshop with Dr. Marieke Mur at Western University. [link]
2011–14	Chair of the Psychology Undergraduate Student Council, Queen's University.

Outreach & Volunteering

2022–*now*	Volunteer with the Canadian Science Policy Centre. [link]
2022	Contributor to the Canadian Neuroscience Association's Science Funding page. [link]
03/2022	Science Advocator for Canadian Neuroscience Association's Parliament Hill Week. [link]
2019–2021	Volunteer Reviewer with the Presentation Skills Workshop, Western University.
2017,18,20	Volunteer Judge for the Thames Valley Science & Engineering Fair.

Media Coverage

2022	Contributor to the Canadian Neuroscience Association's Science Funding page. [link]
12/2019	Research featured in The Dorsal Column (an Ontario-based science publication). [link]
08/2018	Interviewed about my research for CHRW 94.9FM Gradcast radio show. [link]