

# Corson N. Areshenkoff

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## Education

Queens University	KINGSTON, ONTARIO, CANADA
PhD in Psychology (adv. Jason Gallivan)	2017 –
University of Victoria	VICTORIA, BRITISH COLUMBIA, CANADA
MSc in Psychology (adv. Daniel N. Bub, Michael E.J. Masson)	2015 – 2016
Thesis: Task-dependent motor representations evoked by spatial words	
BSc in Mathematics	2012 – 2015

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## Preprints

Areshenkoff, C.N., Nashed, J. Y., Hutchison, R. M., Hutchison, M., Levy, R., Cook, D. J., Menon, R. S., Everling, S., and Gallivan, J. P. (2020a). Muting, not fragmentation, of functional brain networks under general anesthesia. *bioRxiv*, page 783175

Gale, D. J., Areshenkoff, C.N., Honda, C., Johnsrude, I. S., Flanagan, J. R., and Gallivan, J. P. (2019). Motor planning modulates neural activity patterns in early human auditory cortex. *bioRxiv*, page 682609

## Publications

Standage, D., Areshenkoff, C.N., Nashed, J. Y., Hutchison, R. M., Hutchison, M., Heinke, D., Menon, R. S., Everling, S., and Gallivan, J. P. (2020). Dynamic reconfiguration, fragmentation and integration of whole-brain modular structure across depths of unconsciousness. *Cerebral Cortex*

Karr, J. E., Areshenkoff, C.N., Rast, P., Hofer, S. M., Iverson, G. L., and Garcia-Barrera, M. A. (2018). The unity and diversity of executive functions: A systematic review and re-analysis of latent variable studies. *Psychological bulletin*, 144(11):1147

Trafimow, D., Amrhein, V., Areshenkoff, C.N., Barrera-Causil, C. J., Beh, E. J., Bilgiç, Y. K., Bono, R., Bradley, M. T., Briggs, W. M., Cepeda-Freyre, H. A., et al. (2018). Manipulating the alpha level cannot cure significance testing. *Frontiers in Psychology*, 9:699

Areshenkoff, C.N., Bub, D. N., and Masson, M. E. (2017). Task-dependent motor representations evoked by spatial words: Implications for embodied accounts of word meaning. *Journal of Memory and Language*, 92:158–169

Smart, C. M., Karr, J. E., Areshenkoff, C.N., Rabin, L. A., Hudon, C., Gates, N., Ali, J. I., Arenaza-Urquijo, E. M., Buckley, R. F., Chetelat, G., et al. (2017). Non-pharmacologic interventions for older adults with subjective cognitive decline: systematic review, meta-analysis, and preliminary recommendations. *Neuropsychology review*, 27(3):245–257

Karr, J. E., Areshenkoff, C.N., Duggan, E. C., and Garcia-Barrera, M. A. (2014b). Blast-related mild traumatic brain injury: a bayesian random-effects meta-analysis on the cognitive outcomes of concussion among military personnel. *Neuropsychology review*, 24(4):428–444

Karr, J. E., Areshenkoff, C.N., and Garcia-Barrera, M. A. (2014c). The neuropsychological outcomes of concussion: A systematic review of meta-analyses on the cognitive sequelae of mild traumatic brain injury. *Neuropsychology*, 28(3):321

Karr, J. E., Areshenkoff, C.N., Rast, P., and Garcia-Barrera, M. A. (2014d). An empirical comparison of the therapeutic benefits of physical exercise and cognitive training on the executive functions of older adults: A meta-analysis of controlled trials. *Neuropsychology*, 28(6):829

Karr, J. E., Garcia-Barrera, M. A., and Areshenkoff, C.N. (2014a). Executive functions and intraindividual variability following concussion. *Journal of clinical and experimental neuropsychology*, 36(1):15–31

## Conference Presentations

Areshenkoff, C.N., Nashed, J. Y., Hutchison, R. M., Hutchison, M., Menon, R. S., Everling, S., and Gallivan, J. P. (2020b). Predicting depth of sedation from latent structure in whole-brain cortical networks. Paper presented at the annual meeting for the Organization for Human Brain Mapping

**Areshenkoff, C.N.**, de Brouwer, A., Nashed, J. Y., Gale, D., and Gallivan, J. P. (2019). Network-level interactions during sensorimotor adaptation learning and generalization. Poster presented at the annual meeting for the Society for Neuroscience, San Diego, CA

**Areshenkoff, C.N.**, Nashed, J. Y., Standage, D., and Gallivan, J. P. (2018). Functional coupling between the basal ganglia and cerebellum during visuomotor adaptation learning. Poster presented at the annual meeting for the Society for Neuroscience, San Diego, CA

Standage, D., Nashed, J. Y., **Areshenkoff, C.N.**, Flanagan, R. J., and Gallivan, J. P. (2018). Whole-brain modular structure of spontaneous neural activity at rest predicts future sensori-motor learning. Poster presented at the annual meeting for the Society for Neuroscience, San Diego, CA

**Areshenkoff, C.N.**, Bub, D. N., and Masson, M. E. (2016). Parallel encoding of alternative action possibilities alters the execution of a cued action. Poster presented at the 31st meeting of the Society for the Neuroscience of Decision Making. Montreal, QC

**Areshenkoff, C.N.** and Bub, D. N. (2016). The temporal dynamics of motor affordances. Poster presented at the 31st meeting of the Society for the Neuroscience of Decision Making. Montreal, QC

Mulligan, B. P., **Areshenkoff, C.N.**, and Smart, C. M. (2015). Eeg entropy predicts intensively measured cognitive performance in healthy older adults. In *Psychophysiology*, volume 52, pages S25–S25. WILEY-BLACKWELL 111 RIVER ST, HOBOKEN 07030-5774, NJ USA

**Areshenkoff, C.N.**, Bub, D. N., and Masson, M. E. (2015). Embodied representation of word meaning. In *Canadian Journal of Experimental Psychology-Revue Canadienne de Psychologie Experimentale*, volume 69, pages 343–343. Canadian Psychological Assoc. 141 Laurier Ave West, STE 702, Ottawa, Ontario

**Areshenkoff, C.N.**, Karr, J. E., and Garcia-Barrera, M. (2013b). Performance patterns of card selection in the iowa gambling task: Preliminary evidence of high sensitivity to losses following mtbi [abstract]. In *Journal of the International Neuropsychological Society*, volume 19, page 75

**Areshenkoff, C.N.**, Karr, J. E., Crevier-Quintin, E., and Garcia-Barrera, M. (2013a). The benefits of physical and cognitive training programs of executive functions among older adults: A meta-analytical comparison. Poster presented at the 41st annual meeting of the International Neuropsychological Society. Waikaloa, Hawaii

Karr, J. E., **Areshenkoff, C.N.**, Evans, J., Jewett, David Nguyen, K., Tutt, G., and Garcia-Barrera, M. (2012). Physical exercise versus cognitive training on executive functioning: It's a tie! a meta-analysis of controlled trials during healthy aging. Lecture presented at the annual meeting of the Canadian Association of Gerontology. Vancouver, BC

Grindstaff, T. R., Karr, J. E., **Areshenkoff, C.N.**, Saville, K., Alexander, J., and Alexander, R. (2012). Frontal and parietal differences in p300 amplitude and latency during a self-evaluation task. Poster presented at the 24th annual convention of the Association for Psychological Science. Chicago, Illinois

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## Funding and Awards

<b>National Sciences and Engineering Research Council (NSERC) PGS-D</b> \$21,000 (x3 years)	2017-2020
<b>Queens Graduate Entrance Award</b> \$5,000	2017
<b>University of Victoria Graduate Award</b> \$2,000	2016
<b>University of Victoria Graduate Award</b> \$1,000	2015

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## Teaching

<b>Queens University – Psyc 376: Functional Neuroimaging of the Human Brain and Mind</b> Teaching assistant.	2017-2019
<b>Queens University – Psyc 370: Brain and Behavior II</b> Teaching assistant.	2017
<b>University of Victoria – Psyc 401: Measurement of Psychological Processes</b> Guest lecture on exploratory factor analysis and principal component analysis.	2016
<b>University of Victoria – Psyc 401: Measurement of Psychological Processes</b> Teaching assistant and guest lecturer on exploratory factor analysis, validity, and generalizability theory.	2015
<b>University of Victoria – Psyc 351C: Introduction to Mind and Brain</b> Teaching assistant and guest lecturer on reinforcement learning and the basal ganglia.	2015

## Workshops and Summer Schools

<b>Vector Institute Deep Learning and Reinforcement Learning Summer School</b> Toronto, Ontario	<i>July-August 2018</i>
<b>Computational Sensorimotor Neuroscience (CoSMo) Summer School</b> Minneapolis St. Paul, Minnesota	<i>August 2017</i>
<b>Temporal Dynamics of Learning Center (TDLC) Summer School</b> San Diego, California	<i>August 2015</i>

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## Skills

**Programming:** R, Stan, Python, Matlab/Psychtoolbox, and Latex

**Statistics:** Bayesian statistics, multi-level modelling, meta-analysis, spherical/directional statistics, functional data analysis.

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## Projects

### **spdm**

R package for the analysis of symmetric, positive-definite matrices.

### **Motion Toolkit**

A set of R packages (in progress) for the analysis of three dimensional motion tracking data using dual quaternions.

### **lrmatrix**

R package implementing several forms of low rank matrix/tensor factorization models.

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