

Curriculum Vitae

Chad C. Williams

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EDUCATION

PhD in Neuroscience (2018 – Present).

University of Victoria. Current GPA: 9.0/9.0.

Certificate in Learning and Teaching in Higher Education (2020 – Present).

University of Victoria. Current GPA: N/A.

M.Sc. in Neuroscience (2016 – 2018).

University of Victoria. Final GPA: 8.8/9.0.

B.Sc. in Psychology Honours (2012 – 2016).

University of Victoria. Final GPA: 8.8/9.0.

AWARDS (Total: 16, \$208,400)

2018 – NSERC Canada Graduate Scholarship – Doctoral (CGS D) - \$105,000

2015 & 2017 – Neuroeducation Network Research Scholarship (x2) - \$40,000 total

2016 – NSERC Canada Graduate Scholarship – Master's (CGS M) - \$17,500

2016 – 2020 – University of Victoria President's Research Scholarship (x5) - \$19,500 total

2018 – Howard E. Petch Research Scholarships - \$7,500

2015 & 2016 – NSERC Undergraduate Student Research Award (x2) - \$9,000 total

2019 – Jarmila Vlasta Von Drak Thouvenelle Graduate Scholarships - \$4,000

2016 – Community & Scholarship Fund - \$1,000

2018 – Society for Psychophysiological Research Poster Award - \$400

2016 – Canadian Psychological Association Certificate of Academic Excellence

RESEARCH EXPERIENCE

Funded Researcher (2015 – Present). Theoretical and Applied Neuroscience Laboratory, University of Victoria. Supervisor: Dr. Olav Krigolson.

Statistics Consultant (2018 – Present). Chad C. Williams Consulting.

Academic Peer-Reviewer (2019 – Present). Chad C. Williams Consulting.

Biological Psychology (2020)

Experimental Brain Research (2020)

Frontiers in Human Neuroscience (2020)

International Journal of Psychophysiology (2020)

Journal of Neuroscience Methods (2020)

Neuroscience Letters (2019 & 2020)

Laboratory Manager (2015 – 2017). Neuroeconomics Laboratory, University of Victoria. Supervisor: Dr. Olav Krigolson.

Senior Researcher (2015 – 2016). Learning and Cognitive Control Laboratory & Neuroeconomics Laboratory, University of Victoria. Supervisors: Dr. Clay Holroyd & Dr. Olav Krigolson.

Research Assistant (2012 – 2013). Human Electrophysiology Laboratory, Simon Fraser University. Supervisor: Dr. John McDonald.

TEACHING EXPERIENCE

Instructor (2021). University of Victoria.
Cognitive Neuroscience (PSYC 351c)

Co-Instructor (2020). University of Victoria.
Introduction to Neuroscience (MEDS 487)

Online Educator: Practical Statistics with R (2020 – Present).
www.youtube.com/chadcwilliams

Guest Lecturer (2016 – Present). University of Victoria.
Design Project: ECE 399 (2020)
Personal Health, Wellness and Potential: EPHE 142 (2020)
Motor Control: EPHE 380 (2017 & 2018)
Motor Learning: EPHE 245 (2017)
Psychometrics: PSYC 401 (2016)

Private Statistics Tutor (2018 – Present). Chad C. Williams Consulting.
Introduction and Advanced Statistics

Teaching Assistant (2016 – Present). University of Victoria.
Statistics (PSYC 300A & 300B)
Advanced Statistics (PSYC 400A)
Research Methods (PSYC 201)
Psychometrics (PSYC 401)
Motor Learning (EPHE 245 & 380)
Ergonomics (EPHE 456)

Electroencephalography Methods Instructor (2015 – Present).
Theoretical and Applied Neuroscience Laboratory, University of Victoria.

Neuroeducation Instructor for Elementary Students (2016 – 2017).
Neuroeconomics Laboratory, University of Victoria.

Life Skills Educator for Individuals with Disabilities (2007 – 2015).
Private Business, Garth Homer Society, Lifetime Networks, Ridge Meadows Association for Community Living.

PROFESSIONAL EXPERIENCE

Neuroscience Representative in the Graduate Student Society's Graduate Representative Council (2017 – 2020). University of Victoria.

Council Member of Student Affairs Committee (2017 – 2020). University of Victoria.

EPHE Representative in the Neuroscience Graduate Student Association (2017 – 2020). University of Victoria.

PUBLICATIONS AND PRESENTATIONS

REFEREED PUBLICATIONS (Total: 13, First Author: 6)

Williams, C.C., Ferguson, T.D., Hassall, C.D., Abimbola, W., & Krigolson, O.E. (2020). The ERP, Frequency, and Time-Frequency Correlates of Feedback Processing: Insights from a Large Sample Study. *Psychophysiology*, e13722, 1-26.

Williams, C.C., Hassall, C.D., Lindenbach, T., & Krigolson, O.E. (2020). Reward Prediction Errors Reflect an Underlying Learning Process that Parallels Behavioural Adaptations: A Trial-to-Trial Analysis. *Computational Brain and Behaviour*, 3, 189-199.

Colino, F.L., **Williams, C.C.**, Hassall, C.D., Binsted, G., and Krigolson, O.E. (2020). The Impact of Wellness on Neural Learning Systems. *Neuroscience Letters*, 714, 134537.

Ciechanski, P., Hecker, K., Wilson, B., **Williams, C.C.**, Anderson, S., Cheng, A., Lopushinsky, S., & Kirton, A. (2019). Electroencephalography correlates of transcranial direct-current stimulation enhanced surgical skill learning: a replication and extension study. *Brain Research*, 146445.

Ferguson, T., **Williams, C. C.**, Skelton, R. W., & Krigolson, O. E. (2019). Passively Learned Spatial Navigation Cues Evoke Reinforcement Learning Reward Signals. *Cognition*, 189: 65-75.

Williams, C. C., Kappen, M., Wright, B., & Krigolson, O. E. (2019). Thinking Theta and Alpha: Mechanisms of Intuitive and Analytical Reasoning. *NeuroImage*, 189: 574-580.

Pluta, A., **Williams, C. C.**, Binsted, G., Hecker, K. G., & Krigolson, O. E. (2018). Chasing the zone: Reduced beta power predicts baseball batting performance. *Neuroscience Letters*, 868: 150-154.

Howse, A., Hassall, C. D., **Williams, C. C.**, Hajcak, G., & Krigolson, O. E. (2018). Alcohol Hangover Impacts Learning and Reward Processing Within the Medial-Frontal Cortex. *Psychophysiology*, e13081.

Williams, C. C., Hecker, K. G., Paget, M. K., Coderre, S. P., Burak, K. W., Wright, B., & Krigolson, O. E. (2018). The Application of Reward Learning in the Real-World: Changes in the Reward Positivity Amplitude Reflect Learning in a Medical Education Context. *International Journal for Psychophysiology*, 132: 236-242.

Williams, C. C., Hassall, C. D., Trska, R., Holroyd, C. B., & Krigolson, O. E. (2017). When Theory and Biology Differ: The Relationship Between Reward Prediction Errors and Expectancy. *Biological Psychology*, 129: 265-272.

Krigolson, O. E., **Williams, C. C.**, & Colino, F. L. (2017). Using Portable EEG to Assess Human Visual Attention. In *International Conference on Augmented Cognition* (pp. 56-65).

Krigolson, O. E., **Williams, C. C.**, Norton, A., Hassall, C. D., & Colino, F. L. (2017). Choosing MUSE: Validation of a Low-Cost, Portable EEG System for ERP Research. *Frontiers in Neuroscience, 11*.

Williams, C. C., Saffer, B. Y., McCulloch, R. B., & Krigolson, O. E. (2016). The Scarcity Heuristic Impacts Reward Processing Within Medial-Frontal Cortex. *NeuroReport, 27*(7).

NON-REFEREED PUBLICATIONS (Total: 1)

Hassall, C. D., & **Williams, C. C.** (2017). The Role of the Amygdala in Value-Based Learning. *Journal of Neuroscience, 37*(28): 6601-6602.

ORAL PRESENTATIONS (Total: 15, Presenting Author: 11)

Ciechanski P., Kirton A., Wilson B., Williams C.C., Anderson S.J., Cheng A., Lopushinsky S., & Hecker K.G. (2019). Transcranial direct-current stimulation enhances surgical skill learning by altering sensorimotor electrical activity. *CITAC Annual General Meeting 2019*, Banff, AB.

Williams, C.C. (2019). It Takes 21 Lines of Code to Control a Robot with Your Mind: Interdisciplinary Collaborations as the Key to Advancing Science. *Neuroscience Graduate Program Seminar Series*. Victoria, BC.

Williams, C.C. (2019). The Causes and Consequences for Difficult Decisions in Clinicians. *Neuroscience Kickoff*, Victoria, BC.

Williams, C.C. (2018). From the Laboratory to the Real-World: The Versatility in Mobile EEG. *Neuroscience Kickoff*, Victoria, BC.

Williams, C.C., Ferguson, T.D., Hammerstrom, M., Colino, F.L., Wright, B., & Krigolson, O.E. (2018). Putting the Learning Back into Neural Learning Systems. *Northwest Cognition and Memory 2018*, Richmond, BC.

Ferguson, T.D., Williams, C.C., Colino, F.L., Wright, B., & Krigolson, O.E. (2018). More attention, greater control: Acute and chronic stress correlate with differences in alpha and theta oscillations. *Northwest Cognition and Memory 2018*, Richmond, BC.

Middleton, J., Williams, C.C., Wright, B., & Krigolson, O.E. (2018). Midfrontal Theta: Real World Applications in Medical Education. *Northwest Cognition and Memory 2018*, Richmond, BC.

Trska, R., Williams, C.C., Hassall, C.D., Holroyd, C., & Krigolson, O.E. (2018) Motor Learning: The Effect of Expectancy on Reward Positivity and Readiness Potential. *Northwest Cognition and Memory 2018*, Richmond, BC.

Williams, C.C. (2018). Thinking, Alpha and Theta: Neural Indicators of System 1 and System 2. *Cognition and Brain Sciences Seminar*, Victoria, BC.

Krigolson, O. E., **Williams, C.C.**, & Colino, F. L. (2017). Using Portable EEG to Assess

Human Visual Attention. *Human-Computer Interaction International Conference 2017*, Vancouver, BC.

Williams, C. C., Lindenbach, T., Wright, B., & Krigolson, O. E. (2017). Rapid Language Acquisition in a Reinforcement Learning Paradigm. *Northwest Cognition and Memory 2017*, Burnaby, BC.

Williams, C. C. (2016). Learning Pathology with Reinforcements: A Neural Investigation. *Cognition and Brain Sciences Seminars*, Victoria, BC.

Williams, C. C., Saffer, B. Y., McCulloch, R. B., & Krigolson, O. E. (2016) One is the loneliest number, but also the most valuable. *Cognitive Science Association for Interdisciplinary Learning*, Hood River, OR.

Williams, C. C., Paget, M., Coderre, S., Burak, K., Wright, B., & Krigolson, O. E. (2016). Indicators of System I and System II Decision Making when Diagnosing Clinical Cases. *Northwest Cognition and Memory 2016*, Vancouver, BC.

Williams, C. C., Paget, M., Coderre, S., Burak, K., Wright, B., & Krigolson, O. E. (2016). A Reinforcement Learning Approach to Medical Education. *University of Victoria's Making Waves*, Victoria, BC.

Presenter in bold

POSTER PRESENTATIONS (Total: 27, Presenting Author: 12)

Williams, C. C., Ferguson, T. D., Hassall, C. D., Abimbola, W., & Krigolson, O. E. The Reward Positivity, Delta, and Theta in a Sample of 500 Participants. *Society for Psychophysiology Research Meeting*, Virtual.

Williams, C. C. & Krigolson, O. E. (2019). The Power Curve of the Brain: Reward Prediction Errors Follow Learning Curves. *Cognitive Neuroscience Society Annual Meeting*, San Francisco, CA.

Middleton, J., Williams, C. C., Wright, B., & Krigolson, O. E. (2019). Tonic Frontal Theta as an Assessment of Medical Decision Making in the Context of Medical Education. *Cognitive Neuroscience Society Annual Meeting*, San Francisco, CA.

Williams, C. C., Kappen, M., Hassall, C. D., Wright, B., & Krigolson, O. E. (2018). Cognitive Control and Attention: Neurocognitive Mechanisms of System 1 and System 2 Thinking. *Society for Psychophysiology Research Meeting*, Quebec City, QC.

Berman, T., Williams, C., & Krigolson, O. E. (2018). Neural Correlates of Feedback Congruency: Top-Down Modulation of the Reward Positivity. *Canadian Neuroscience Annual Meeting*, Vancouver, BC.

Hammerstrom, M., Williams, C. C., Ferguson, T. D., Colino, F. L., Wright, B., & Krigolson, O. E. (2018). Neural Learning Signals Reflect Task Performance in a Medical Context. *Northwest Cognition and Memory 2018*, Richmond, BC.

Walther, L., Williams, C. C., & Krigolson, O. E. (2018). Early bird vs. night owl: Using EEG to measure your attention fluctuations throughout the day. *Northwest Cognition and Memory 2018*, Richmond, BC.

Gagliardi, G., Williams, C. C., Abimbola, W., & Krigolson, O. E. (2018). Using a Pair of Glasses to See Your Brainwaves. *Northwest Cognition and Memory 2018*, Richmond, BC.

Walther, L., Williams, C. C., & Krigolson, O. E. (2018). Morning person vs. night owl: Using EEG to measure your attention fluctuations throughout the day. *Jamie Cassels Undergraduate Research Awards Research Fair*, Victoria, BC.

Foster, C., Williams, C. C., Krigolson, O. E., & Fyshe, A. (2017). Decoding Word Semantics and Learning in EEG Data via an Artificial Language. *Cognitive Computational Neuroscience*, New York, NY.

Williams, C., Schulze, M., Wright, B., & Krigolson, O. E. (2017). Neural correlates of system I and system II judgements when diagnosing diseases. *Society for Psychophysiological Research Meeting*, Vienna, Austria.

Norton, A., Colino, F., Williams, C. C., Hassall, C., & Krigolson, O. E. (2017). Finding a MUSE: Validation of a low-cost, portable system, for EEG research. *Society for Psychophysiological Research Meeting*, Vienna, Austria.

Williams, C. C., Lindenbach, T., Colino, F., Wright, B., & Krigolson, O. E. (2017) Learning a Novel Language with Reinforcements: A Preliminary Neural Investigation. *Organization for Human Brain Mapping Meeting*, Vancouver, BC.

Hassall, C. D., Williams, C. C., & Krigolson, O. E. (2017). P300 scaling: Value, average reward, and the framing effect. *Organization of Human Brain Mapping Conference*, Vancouver, BC.

Norton, A., Williams, C. C., Hassall, C. D., Colino, F. L., Krigolson, O. E. (2017) A Validation of a Low-Cost Portable EEG System. *Organization for Human Brain Mapping Conference*, Vancouver, BC.

Schulze, M., Williams, C. C., Wright, B., Krigolson, O. E. (2017). System I and System II Decision Making in a Medical Context. *Northwest Cognition and Memory 2017*, Vancouver, BC.

Fitzpatrick, S., Fisher, S., Williams, C. C., and Krigolson, O. E. (2017). Neurophysiological Assessment of Concussion: Variability in Reward Positivity. *Jamie Cassels Undergraduate Research Awards Research Fair*, Victoria, BC.

Williams, C. C., Paget, M., Coderre, S., Burak, K., Wright, B., and Krigolson, O. E. (2016). The Neural Basis of Clinical Decision Making. *77th Annual Convention for the Canadian Psychological Association (CPA)*, Victoria, BC.

Hassall, C. D., Williams, C. C., & Krigolson, O. E. (2016). Good, better, best: Electroencephalographic responses scale to reward value. *77th Annual Convention for the Canadian Psychological Association (CPA)*, Victoria, BC.

McCulloch, R. B., Williams, C. C., Saffer, B. Y., & Krigolson, O. E. (2016). I lost all of my marbles, but I only care about the white ones. *77th Annual Convention for the Canadian Psychological Association (CPA)*, Victoria, BC.

Lindenbach, T. N., **Williams, C. C.**, and Krigolson, O. E. (2016). Rapid Learning of a Novel Language: An Electroencephalographic Investigation. *Northwest Cognition and Memory 2016*, Vancouver, BC.

Pluta, A. J., Williams, C. C., and Krigolson, O. E. (2016). The Effects of Background Alpha on Baseball Performance. *Northwest Cognition and Memory*, Vancouver, BC.

Williams, C. C., Paget, M., Coderre, S., Burak, K., Wright, B., and Krigolson, O. E. (2016). Neural Systems That Underlie Clinical Decision Making: An Electroencephalographic Investigation. *Cognitive Neuroscience Society Annual Meeting*, New York, NY.

Williams, C. C., Holroyd, C. B., & Krigolson, O. E. (2016). Reward Processing when Evaluating Goals: Insight into Hierarchical Reinforcement Learning. *Psychology Students of Vancouver Island Poster Session*, Victoria, BC.

Williams, C. C., Hassall, C. D., & Krigolson, O. E. (2015). Reward Expectancy and the Reward Positivity: A Non-Linear Trend. *Society for Psychophysiological Research 55th Annual Meeting*, Seattle, WA.

Williams, C. C., Hassall, C. D., & Krigolson, O. E. (2015). Reward Expectancy and the Reward Positivity: A Non-Linear Trend. *Northwest Cognition and Memory 2015*, Bellingham, OR.

Presenter in bold