Christopher Louis Hewitson

Résumé

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Education

2017 – 2021 | **Macquarie University**
PhD in Cognitive Science
Sensorimotor learning in complex and uncertain environments

2016 – 2016 | **Macquarie University**
MRES in Cognitive Science
Investigating Interlimb Generalisation of Bayesian Sensorimotor Learning

2014 – 2015 | **Adelaide University**
BA(Hons) in Philosophy of Cognitive Science
Eliasmith's Account of Mental Representation: A Peircean-inspired Analysis

2010 – 2011 | **University of South Australia**
MTEACH in Middle and Secondary Education

2007 – 2008 | **Adelaide University**
BA in Philosophy of Mind

2005 – 2006 | **Flinders University**
BSc(Hons) Pharmacology
Acute effects of haemodialysis on biochemical modulators of endothelial function

2002 – 2005 | **Flinders University**
BTECH in Pharmacology and Molecular Synthesis

Awards, Honours and Grants

April 2022 – April 2024 | **Yale University**
Seesel Endowed Postdoctoral Fellowship
- ACT lab, Wu Tsai Institute, Yale University, adviser Samuel Mcdougle.

2019 – 2020 | **Macquarie University**
Competitive Post Graduate research fund recipient
- Partitioning Feedforward from Feedback Components of Bayesian Sensorimotor Learning: SFN 2019, Chicago.
- Lab visit with Associate Professor Jordan Taylor at the Princeton Neuroscience Institute, New Jersey.

2018 – 2019 | **Macquarie University**
Centre of Excellence in Cognition and its Disorders: Student exchange scheme grant recipient
- Investigating the implicit vs explicit components of Bayesian motor learning.
- Lab visit with Professor Timothy Carroll at the Human Motor Control Lab, University of Queensland.

2017 – 2020 | **Macquarie University**
Centre of Excellence in Cognition and its Disorders: Neural markers training scheme grant recipient
- Investigating the neural mechanisms underlying Bayesian sensorimotor learning using transcranial magnetic stimulation.

2014 – 2015 | **Flinders University Department of Computer Science, Engineering and Mathematics**
Summer intern Scholarship
- Development of neural network architecture in Java.

Work Experience

2024 – present
Universität Tübingen
Researcher, Andreas Bartels lab, Vision and Cognition Werner Reichardt Centre for Integrative Neuroscience
- Researcher into Ego-motion in VR, using fMRI and TMS.

2024 – present
Max Planck Institute for Biological Cybernetics
Guest Researcher
- Researcher into Ego-motion in VR, using fMRI and TMS.

2024 – present
Adelaide University, School of Education
Adjunct Research Fellow
- Researcher into motor-skill learning using VR simulation.

2022 – 2024
Yale University
Postdoctoral Associate, ACT lab, Wu Tsai Institute, Yale University
- Postodctoral researcher into motor-learning neuroscience, advised my Samuel McDougle.

2019 – 2019
Macquarie University
MRES Adjunct Supervisor
- Co-supervision of visiting cotutelle student from Georg-August-University, Göttingen

2017 – 2020
Macquarie University
Tutor
- COGS100: Introduction to Cognitive Science.

2013 – 2015
UniSA: Computational and Theoretical Neuroscience Lab
Volunteer intern
- Development of improved learning rules for Recursive Neural Network Architecture (Supervised by Dr. Mark McDonnell)

2012 – 2015
Hamilton Secondary College Adelaide
Secondary-school Teacher
- Year 11 and 12 Psychology, Philosophy and Nutrition studies. Year 11 Physics, Chemistry and Biology. Year 8 - 10 History, English, Japanese and Media studies.

2011 – 2012
Norwood Morialta Middle School
Middle-school Teacher
- International Baccalaureate (IB) Science, years 8-10.

2010 – 2011
Tall-poppy Tutors Adelaide
Private tutor
- Secondary-school years 8-12 tutor (Science and Psychology).

2009 – 2010
Flinders University School of Medicine
Tutor
- Graduate-entry Medical program.

2009 – 2010
Flinders University Department of Philosophy
Tutor
- Theory of Knowledge program.

2006 – 2007
Flinders University Department of Pharmacology
Research Officer
- Analysis of short-term reproducibility of arterial vasoreactivity by pulse-wave analysis after pharmacological challenge project.

Publications

2024
1. **Hewitson, C. L.**, Kaplan, D. M. & Crossley, M. Sensorimotor challenges in minimally invasive surgery: A theoretically-oriented review. *Human Factors* (2024).

2023
2. Crossley, M. J., **Hewitson, C. L.** & Kaplan, D. M. Context versus aiming in motor learning when both feedforward and feedback control processes are engaged. *bioRxiv,* 2023–11 (2023).
3. Crossley, M. J., **Hewitson, C. L.** & Kaplan, D. M. Sensory uncertainty influences motor learning differently in blocked versus interleaved trial contexts when both feedforward and feedback processes are engaged. *bioRxiv,* 2023–11 (2023).
4. **Hewitson, C. L.**, Al-Fawakhiri, N., Forrence, A. D. & McDougle, S. D. Metacognitive Judgments during Visuomotor Learning Reflect the Integration of Error History. *JNeurophys* (2023).
5. **Hewitson, C. L.**, Kaplan, D. M. & Crossley, M. Sensorimotor learning under uncertainty: Emerging principles and open questions. *In review* (2023).
6. **Hewitson, C. L.**, Kaplan, D. M. & Crossley, M. Sensory uncertainty punctuates motor learning independently of movement error when both feedforward and feedback control processes are engaged. *PLOS Comp Bio* (2023).

2022
7. Gillett, A. J., Whyte, C. J., **Hewitson, C. L.** & Kaplan, D. M. Defending the use of the mutual manipulability criterion in the extended cognition debate. *Frontiers in Psychology,* 7484 (2022).

2021
8. Crossley, M. J., **Hewitson, C. L.**, Cartmill, J. & Kaplan, D. M. Motor adaptation: an underappreciated aspect of technical surgical skill. *ANZ Journal of Surgery* **91,** 489–490 (2021).
9. Gillett, A., Whyte, C., **Hewitson, C. L.** & Kaplan, D. M. Defending the viability of the mutual manipulability criterion in the extended cognition debate:: a reply to Baumgartner et al. *Philosophical Psychology* (2021).
10. **Hewitson, C. L.**, Crossley, M. J. & Kaplan, D. M. Effects of visuomotor perturbations on motor performance in minimally invasive surgery: a theoretically-oriented review. *Annals of Surgery* (2021).
11. **Hewitson, C. L.**, Shukur, S. T., Cartmill, J., Crossley, M. & Kaplan, D. M. Camera counter-rotation imposes a cost on laparoscopic performance. *Scientific Reports* **11** (2021).
12. Kaplan, D. M. & **Hewitson, C. L.** in *Neural Mechanisms* 11–33 (Springer, 2021).

2020
13. **Hewitson, C. L.**, Crossley, M. J. & Kaplan, D. M. Enhanced visuomotor learning and generalization in expert surgeons. *Human Movement Science* **71,** 102621 (2020).

2018
14. **Hewitson, C. L.**, Kaplan, D. M. & Sutton, J. Yesterday the earwig, today man, tomorrow the earwig? *Comparative Cognition & Behavior Reviews* **13** (2018).
15. **Hewitson, C. L.**, Sowman, P. F. & Kaplan, D. M. Interlimb Generalization of Learned Bayesian Visuomotor Prior Occurs in Extrinsic Coordinates. *Eneuro* **5** (2018).

2013
16. Bouteldja, N. *et al.* Methylated arginines and nitric oxide in end-stage renal disease: impact of inflammation, oxidative stress and haemodialysis. *Biomarkers* **18,** 357–364 (2013).

2012
17. Bouteldja, N. *et al.* P86Methylated arginines and nitric oxide in end-stage renal disease: relationship with inflammatory and oxidative status. *Cardiovascular Research* **93** (2012).

2009
18. Paul, B., **Hewitson, C. L.**, Woodman, R. J. & Mangoni, A. A. Analysis of short-term reproducibility of arterial vasoreactivity by pulse-wave analysis after pharmacological challenge. *Clinical and Experimental Pharmacology and Physiology* **36,** 49–54 (2009).

2008
19. Mangoni, A. A. *et al.* Symmetric dimethylarginine is an independent predictor of intradialytic hypotension. *American journal of hypertension* **21,** 955–959 (2008).

2007
20. **Hewitson, C. L.**, Whiting, M. J., Barbara, J. & Mangoni, A. A. Acute effects of haemodialysis on biochemical modulators of endothelial function. *Journal of internal medicine* **262,** 571–580 (2007).

Referees

Assistant Professor Sam Mcdougle. [Postdoctoral Advisor] Department of Psychology, Yale University
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Associate Professor David Kaplan [PhD Supervisor] School of Psychological Sciences, Macquarie University
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Dr. Jon Opie [Honours Supervisor] School of Humanities, Adelaide University
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