

SCOTT STONE, PHD

scott.allan.stone [at] gmail.com




EDUCATION

University of Alberta

Doctor of Philosophy (Psychology) 2023

Supervisors: Dr. Craig S. Chapman & Dr. Anthony Singhal

Thesis: *Eye and body tracking in the lab, in the wild, and in the clinic* 

University of Lethbridge

Master of Science (Neuroscience) 2017

Supervisors: Dr. Matthew S. Tata & Dr. Claudia L.R. Gonzalez

Thesis: *Using Auditory Augmented Reality to Understand Visual Scenes* 

University of Lethbridge

Bachelor of Science (Neuroscience) 2015

Supervisor: Dr. Claudia L.R. Gonzalez

RESEARCH EXPERIENCE

The Action in Complex Environments Lab, University of Alberta

Graduate Student (Ph.D) Sept. 2017 - May 2023

Supervisor: Dr. Craig S. Chapman

The Brain in Action Lab, University of Lethbridge

Graduate Student (M.Sc) & Research Assistant (B.Sc) Sept. 2013 - Aug. 2017

Supervisor: Dr. Claudia L.R. Gonzalez

Tata Lab, University of Lethbridge

Graduate Student (M.Sc) Sept. 2015 - Aug. 2017

Supervisor: Dr. Matthew S. Tata

Speech Neurogenetics Laboratory, University of Alberta

Summer Research Intern (UARE) May 2014 - Aug. 2014

Supervisors: Dr. Deryk S. Beal & Dr. Ivor Cribben

WORK EXPERIENCE

Reverb Robotics, Lethbridge

Data Scientist & Operations May 2023 - current

Mitacs-funded postdoctoral researcher

BioWare, Edmonton

Mitacs Accelerate Intern - User Experience Researcher Feb. 2020 - Dec. 2022

Software development for analysis of hand and gaze patterns during user interface interaction

PUBLICATIONS

**equal contribution*

7. **Stone S.A.**, Chapman C.S. (2023). Unconscious frustration: dynamically assessing user experience using eye and mouse tracking. *ACM Symposium on Eye Tracking Research and Applications (ETRA)*; published in *Proceedings of the ACM on Human-Computer Interaction*. [10.1145/3591137](https://doi.org/10.1145/3591137) — [data](#)
6. **Stone S.A.**, Boser Q.A., Dawson T.R, Vette A.H., Hebert J.S., Pilarski P.M., Chapman C.S. (2022). Generating accurate 3D gaze vectors using synchronized eye tracking and motion capture. *Behavior Research Methods*. [10.3758/s13428-022-01958-6](https://doi.org/10.3758/s13428-022-01958-6) — [data](#)

5. **Stone S.A.**, Boser Q.A., Dawson T.R., Vette A.H., Hebert J.S., Pilarski P.M., Chapman C.S. (2021). Sub-centimeter 3D gaze vector accuracy on real-world tasks: an investigation of eye and motion capture calibration routines. *ACM Symposium on Eye Tracking Research and Applications (ETRA)*. [10.1145/3450341.3458880](https://doi.org/10.1145/3450341.3458880)
4. Wispinski N.J., **Stone S.A.**, Bertrand J.K., Ouellette Zuk A.A., Lavoie E.B., Gallivan J.P., Chapman C.S. (2021). Reaching for known unknowns: Rapid reach decisions accurately reflect the future state of dynamic probabilistic information. *Cortex*. [10.1016/j.cortex.2021.02.010](https://doi.org/10.1016/j.cortex.2021.02.010) — data
3. **Stone S.A.**, Baker J., Olsen R., Gibb R., Doan J., Hoetmer J., Gonzalez C.L.R. (2019). Visual field advantage: Redefined by training? *Frontiers in Psychology*. 9:2764. [10.3389/fpsyg.2018.02764](https://doi.org/10.3389/fpsyg.2018.02764) — data
2. *Lavoie E.B., *Bertrand J.K., ***Stone S.A.**, *Wispinski N.J., *Sawalha J., *Chapman C.S. (2018). Examining the “species” of situated cognition in humans. Comment on “Cognition beyond representation: Varieties of situated cognition in animals”. *Comparative Cognition & Behavior Reviews*, 13. [10.3819/ccbr.2017.120003](https://doi.org/10.3819/ccbr.2017.120003)
1. **Stone S.A.**, Tata M.S. (2017). Rendering visual events as sounds: Spatial attention capture by auditory augmented reality. *PLOS ONE*. 12.8. e0182635. [10.1371/journal.pone.0182635](https://doi.org/10.1371/journal.pone.0182635) — data

CONFERENCE PRESENTATIONS

24. **Stone S.A.**, Chapman C.S., (2023). Unconscious frustration: dynamically assessing user experience using eye and mouse tracking. Talk presented at ACM Symposium on Eye Tracking Research and Applications (ETRA) 2023. May 30–June 2; Tübingen, Germany.
23. Wispinski N.J., **Stone S.A.**, Singhal A., Pilarski P.M., Chapman C.S., (2022). Primate-like perceptual decision making through deep recurrent reinforcement learning. Talk presented at Society for Neuroscience (SfN) 2022. Nov 12; San Diego, CA, USA.
22. **Stone S.A.**, Chapman C.S. (2022). Assessment of remote eye tracking using a video game menu navigation task. Eye and body movements during object interactions in real and virtual worlds. Poster presented at Society for Neuroscience (SfN) 2022. Nov 12; San Diego, CA, USA.
21. **Stone S.A.**, Boser Q.A., Dawson T.R., Vette A.H., Hebert J.S., Pilarski P.M., Chapman C.S. (2021). Sub-centimeter 3D gaze vector accuracy on real-world tasks: an investigation of eye and motion capture calibration routines. Talk presented at ACM Symposium on Eye Tracking Research and Applications. May 27; Reno, NV, USA. Virtual.
20. Beausoleil K., Jafferjee, T., Wispinski, N., **Stone S.A.**, Chapman, C.S. (2019). The Nature of Decision-Making: Human Behaviour vs Machine Learning. Poster presented at the WISEST poster presentation ceremony. August 15; Edmonton, AB.
19. Lavoie E.B., **Stone S.A.**, Hebert J.S., Chapman C.S. (2018). Eye and body movements during object interactions in real and virtual worlds. Poster presented at Society for Neuroscience (SfN). November 3; San Diego, CA, USA.
18. **Stone S.A.**, Lavoie E.B., Chapman C.S. (2018). Assessing different 3D gaze vector calibration techniques on synchronized motion capture and eye-tracking data. Poster presented at Society for Neuroscience (SfN). November 3; San Diego, CA, USA.
17. **Stone S.A.**, Dawson T.R., Boser Q., Hebert J.S., Chapman C.S. (2018). Using Lab Streaming Layer to collect synchronized multimodal datasets. Presented at the Canadian Action and Perception Network (CAPnet) Canadian Physiological Society (CPS) Satellite Symposium at the Canadian Association for Neuroscience (CAN) Conference. Vancouver BC.

16. Lee, V., **Stone S.A.**, Tata M.S. (2018). How many is too many at a cocktail party? Testing the limits of spatial resolution in complex auditory scenes. Presented at the Canadian Action and Perception Network (CAPnet) Canadian Physiological Society (CPS) Satellite Symposium at the Canadian Association for Neuroscience (CAN) Conference. Vancouver BC.
15. **Stone S.A.**, Gonzalez C.L.R., Tata M.S. (2017). Hearing What You See: A Novel Visual-to-Auditory Augmented Reality System. Presented at the Banff Annual Seminar in Cognitive Science (BASICS). May 5-6; Banff, AB.
14. Lee V., **Stone S.A.**, Tata M.S. (2017). Resolution of multiple talkers in a "cocktail party" depends on head movements. Presented at the Undergraduate Research in Science Conference of Alberta. April 7-8; Calgary AB.
13. Grasse L.W.N, **Stone S.A.**, Tata M.S. (2017). Localization of Moving Sound Sources in Virtual Reality Technology. Presented at the Undergraduate Research in Science Conference of Alberta. April 7-8; Calgary AB.
12. **Stone S.A.**, Tata M.S. (2017). Seeing Through Sound: A novel visual-to-auditory augmented reality device. Presented at the Canadian Spring Conference on Behaviour and Brain. February 23-25; Fernie BC.
11. Lee V., **Stone S.A.**, Tata M.S. (2017). Whats in a cocktail party? Testing the mechanisms of auditory spatial resolution in multi-talker scenes. Presented at the Canadian Spring Conference on Behaviour and Brain. February 23-25; Fernie BC.
10. Grasse L., **Stone S.A.**, Tata M.S. (2016). The Effect of Head Movements on Auditory Front/Back Ambiguity in Virtual Reality Technology. Presented at the Prairie Perception, Action and Cognition Conference (P-PACT). November 5; Canmore AB.
9. Lee V., **Stone S.A.**, Tata M.S. (2016). How many guests makes for a good cocktail party? Presented at the Prairie Perception, Action and Cognition Conference (P-PACT). November 5; Canmore AB.
8. **Stone S.A.**, Delbrück T., Gonzalez C. L. R., Tata M.S. (2016). Prosthetic attention: A visual-to-auditory augmented reality system. Presented at the Prairie Perception, Action and Cognition Conference (P-PACT). November 5; Canmore AB.
7. **Stone S.A.**, Delbrück, T., Gonzalez C. L. R., Tata M.S. (2016). Computational model of motion sensitive cells using a neuromorphic artificial retina. Presented at the Banff Annual Seminar in Cognitive Science (BASICS). April 29-30; Banff AB.
6. **Stone S.A.**, Flindall J.W., Gonzalez C. L. R. (2015). The bias in our vision: Lower visual field advantages for grasping revealed through gaze analysis. Presented at the Cognitive Neuroscience Society Conference on Innovations in Mind and Brain Science. March 28-31; San Francisco, CA, USA.
5. **Stone S.A.**, Gonzalez C.L.R. (2015). Right visual field advantages for grasping, but only in the lower visual field. Presented at the Canadian Spring Conference on Behaviour and Brain. February 19-21; Fernie BC.
4. **Stone S.A.**, Cribben, I., Beal D.S. (2014). Functional Connectivity Analysis in Adults Who Stutter. Presented at the University of Alberta Research Experience presentation ceremony. August 20; Edmonton AB.
3. **Stone S.A.**, Gonzalez, C.L.R. (2014). The attention-hungry left space: An examination of eye gaze during a reach-to-grasp task. Presented at the Banff Annual Seminar in Cognitive Science (BASICS). May 2-4; Banff AB.

2. **Stone S.A.**, deBruin N., Gonzalez, C.L.R. (2014). Do you grasp where you look? Presented at the Canadian Spring Conference on Behaviour and Brain. February 20-22; Fernie BC.
1. MacLean J., **Stone S.A.**, Gonzalez C. L. R. (2013). EMG correlates of action observation. Presented at the Alberta Motor Control Association Annual Meeting (NeuroHike). September 27-29; Jasper AB.

AWARDS AND HONOURS

Mitacs Elevate Postdoctoral Fellowship (\$120000)	May 2023–2025
Alberta Machine Intelligence Institute Travel Bursary (\$500)	May 2022
Mitacs Accelerate Internship Award (\$50000)	February 2021–December 2022
Mitacs Accelerate Internship Award (\$30000)	February 2020–2021
Dept. of Psychology Best Graduate Student Research Paper Award  (\$500)	August 2019
President's Doctoral Prize of Distinction (\$10000 (annual))	September 2019-2021
NSERC Postgraduate Scholarship-Doctoral (\$42000)	September 2019-2021
Mitacs Accelerate International Internship Award (\$45000; declined)	March 2019
Queen Elizabeth II Graduate Scholarship - Doctoral (\$15000)	October 2018
University of Alberta Graduate Travel Award (\$500)	October 2018
University of Alberta Skitch Travel Award (\$250)	September 2018
University of Alberta Graduate Travel Award (\$500)	November 2017
University of Alberta Department of Psychology Scholarship (\$10000)	September 2017
University of Lethbridge Graduate Scholarship (\$16000; declined)	July 2017
Government of Alberta Graduate Scholarship Award (\$3000)	February 2017
Agility Neuroscience Business Plan Pitch Competition (\$500)	April 2016
University of Lethbridge Graduate Travel Award (\$500)	March 2015
University of Lethbridge Students Union Travel Award (\$250)	March 2015
University of Alberta Research Experience Award (\$6500)	May–August 2014
University of Lethbridge Students Union Travel Award (\$500)	March 2014
University of Lethbridge Excellence & Leadership Qualities Scholarship (\$2500)	January 2012
Don Henneberg Memorial Scholarship (\$1500)	January 2012
Lufkin Academic Scholarship (\$2000)	January 2012
KUDU Academic Excellence Scholarship (\$750)	September 2011

GRANTS

University Hospital Foundation Medical Research Grant (\$35000)	January 2022–2023
<i>Rapid Clinical Assessment of Vertigo Using Non-invasive Eye-tracking and Markerless Motion-tracking Techniques</i>	
Role: Investigator	
Mitacs Accelerate Grant (\$75000) – BioWare	February 2021–December 2022
<i>Developing Gaze and Movement Key Performance Indicators for User Experience Assessment</i>	
Role: Co-investigator	
Mitacs Accelerate Grant (\$45000) – BioWare	February 2020–2021
<i>Developing Gaze and Movement Key Performance Indicators for User Experience Assessment</i>	
Role: Co-investigator	

ACADEMIC SERVICE

Conference Organization

Hidden Methods Conference (Virtual)–Lead organizer	April 2022
CAPnet-CPS CAN-ACN Satellite Symposium (Vancouver, BC)	May 2018
P-PACT (Perception Action Cognition) Conference (Canmore, AB)	November 2016

SfN Lethbridge Chapter Poster Symposium (Lethbridge, AB)

November 2016

Volunteer & Service

Dark Matters: The Science of Drugs, Presenter

October 2019

Telus World of Science NGS Graduate Showcase, Presenter

March 2019

Science Fundamentals (SciFun), University of Alberta, Presenter

March 2019

Faculty of KSR Open House (University of Alberta), Presenter

Sept. 2018, Feb. 2019

Undergraduate Neuroscience Conference (University of Alberta), Judge

August 2018

Faculty of Medicine & Dentistry Festival of Health, Presenter

May 2018

Telus World of Science Graduate Student Showcase, Presenter

May 2018, 2019

Brain Awareness Week (University of Lethbridge), Setup

March 2016-17

Let's Talk Science (University of Lethbridge), Presenter

June 2014

Operation Minerva (University of Lethbridge), Presenter

April 2014

Ad Hoc Reviewer

IEEE Transactions on Human-Machine Systems (1)

Experimental Brain Research (2)

Frontiers in Psychology (1)

Frontiers in Neuroscience (1)

Journal of Cognitive Neuroscience (1)

PLOS ONE (1)

Journal of Advanced Research (1)

Trends in Cognitive Sciences (1)

Behavioural Brain Research (1)

Invited/Guest Lectures

Gaze and Movement Analysis (GaMA): Applications for rapid clinical assessment

May 2021

Neuroscience Rounds, Division of Neurology, Faculty of Medicine, University of Alberta

Synchronizing Eye-Tracking and Motion Capture Data

November 2018

PSYCO 104 (Introductory Psychology), University of Alberta

STUDENT SUPERVISION

Keeya Beausoleil ([WISEST Student Summer 2019](#))

Jared Baker ([publication](#))

Rob Olsen ([publication](#))

TECHNICAL STRENGTHS & EXPERIENCE

Languages in order of familiarity

MATLAB, Python, C#, C++, Rust, L^AT_EX

Methods

eye-tracking, motion capture, reinforcement learning