# Carl Michael Galang, PhD

Address: Social Intelligence Lab

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# **Employment**

#### POST-DOCTORAL RESEARCH FELLOW (Oct. 1st, 2021 - Current)

Marie Skłodowska-Curie Actions (MSCA) Postdoctoral Fellow (Oct. 1st, 2023)

Social Intelligence Lab

Institute for Psychology | Berlin School of Mind and Brain

Humboldt University of Berlin Supervisor: Marcel Brass

## POST-DOCTORAL RESEARCH FELLOW (Oct. 1st, 2020 - Sept. 30th, 2021)

Social Brain, Body and Action Lab

Department of Psychology, Neuroscience and Behaviour

McMaster University

Co-supervisors: Sukhvinder Obhi (McMaster University) & Marcel Brass (Humboldt University of

Berlin)

## **Education**

## **MCMASTER UNIVERSITY (2015-2020)**

## Department of Psychology, Neuroscience & Behaviour

PhD in Psychology (Social Cognitive Neuroscience)

Supervisor: Sukhvinder Obhi

Committee Members: Laurel Trainor, Bruce Milliken, & David Feinberg

External Examiner: Claus Lamm (University of Vienna)

Thesis Title: Pain Observation, Empathy, and the Sensorimotor System: Behavioural and

Neurophysiological Explorations

# **UNIVERSITY OF TORONTO (2009-2014)**

**University College, St. George Campus** 

Honours B.A. (with distinction)

Double Major: Cognitive Science & Philosophy

Minor: Psychology

# **Publications**

Shum, Y.H., **Galang, C.M.**, & Brass, M. (In Pres). Using a Veto Paradigm to Investigate the Decision Models in Explaining Libet-style Experiments. *Consciousness and Cognition*.

- **Galang, C.M.**, Cracco, E., & Brass, M. (2024). Anticipated imitation of multiple agents. *Cognition*, 249, 105831.
- Quesque, F., Apperly, I, Baillargeon, R., [...], **Galang, C.M.**, [...], & Brass, M. (2024). Defining key concepts for mental state attribution. *Communications Psychology*, 2(29), 1-5.
- **Galang, C.M.** & Obhi, S.S. (2022). Empathic pain observation does not influence automatic imitation in an online setting. *Experimental Brain Research*, *241*, 263-276.
- Malik, R., Galang, C.M., & Finger, E. (2022). The Sense of Agency for Brain Disorders: A Comprehensive Review and Proposed Framework. Neuroscience and Biobehavioral Reviews, 139, 104759.
- Mekik, S.C. & **Galang, C.M.** (2022). Cognitive Science in a Nutshell. *Cognitive Science*, *46*, e13179.
- **Galang, C.M.**, Ku, M., & Obhi, S.S. (2021). Blatant Dehumanization is Not Influenced by Dual Identity Labels: Evidence from the Canadian Context. *International Journal of Psychological Studies*, 13(4), 62-74.
- **Galang, C.M.,** Malik, R., Kinley, I., & Obhi, S.S. (2021). Studying Sense of Agency Online: Testing the robustness of the intentional binding effect using an online sample. *Consciousness and Cognition*, *95*, 103217.
- **Galang, C.M.,** Jenkins, M., Fahim, G., & Obhi, S.S. (2021). Exploring the relationship between social power and the ERP components of empathy for pain. *Social Neuroscience*, *16*, 174-188.
- **Galang, C.M.,** Pichtikova, M., Sanders, T., & Obhi, S.S. (2021). Investigating the effects of pain observation on approach and withdrawal actions. *Experimental Brain Research*, 239, 847-856.
- **Galang, C.M.** & Obhi, S.S. (2021). To Move or Not to Move: Cortico-spinal activity is enhanced during pain observation regardless of motor preparation state. *Journal of Neurophysiology*, 125, 599-605.
- **Galang, C.M.**, Johnson, D., & Obhi, S.S. (2021). Exploring the Relationship Between Empathy, Self-Construal Style, and Self-Reported Social Distancing Tendencies During the COVID-19 Pandemic. *Frontiers in Psychology*, 12, 588934.
- **Galang, C.M.** & Obhi, S.S. (2020). Automatic imitation does not predict levels of generosity during a modified dictator game. *Acta Psychologica*, 204, 103022.
- **Galang, C.M.**, Jenkins, M., & Obhi, S.S. (2020). Exploring the Effects of Visual Perspective on the ERP Components of Empathy for Pain. *Social Neuroscience*, *15*(2), 186-198.
- **Galang, C.M.** & Obhi, S.S. (2020). Please Empathize! Instructions to empathize strengthen response facilitation after pain observation. *Cognition and Emotion*, *34*(2), 316-328.

- **Galang, C.M.** & Obhi, S.S. (2019). Social Power and Frontal Alpha Asymmetry. *Cognitive Neuroscience*, *10*(1), 44-56.
- Civile, C., Elchlepp, H., McLaren, R., **Galang, C.M.**, Lavric, A., & McLaren, I.P.L. (2018). The effect of scrambling upright and inverted faces on the N170. *Quarterly Journal of Experimental Psychology*, 71(11), 2464-2476.
- **Galang, C.M.**, Naish, K.R., Arbabi, K., & Obhi, S.S. (2017). Observing painful events in others leads to temporally extended general response facilitation in the self. *Experimental Brain Research*, 235(11), 3469-3477.
- Naish, K.R., Rajagobal, A., Galang, C.M., Sartori, L., & Obhi, S.S. (2017). Effects of intentional movement preparation on response times to symbolic and imitative cues. *Experimental Brain Research*, 235(3), 753-761.
- **Galang, C.M.** & Mekik, C. (2015). Existence versus Primacy: A Critical Overview of Phenomenal Intentionality. *Noesis: Undergraduate Journal of Philosophy at the University of Toronto,* 16, 23-40.

# **Preprints**

- **Galang, C.M.**, Cracco, E., Chirkov, V., Obhi, S.S., & Brass, M. (In Prep.). Explicit Sense of Agency and Group Control: Feelings of control increases with number of followers, especially when commanding human-like social agents. <a href="https://osf.io/x76fk">https://osf.io/x76fk</a>
- Azevedo, F., Parsons, S., Micheli, L., Strand, J., Rinke, E., ..., **Galang, C.M.,** ... & FORRT (In Prep.). Introducing a Framework for Open and Reproducible Research Training (FORRT). <a href="https://osf.io/bnh7p">https://osf.io/bnh7p</a>.

# In Preparation

- **Galang, C.M.**, Akan, A., Pfister, R., & Brass, M. (In Prep.). Sense of Agency, Temporal Binding, and Rule Breaking.
- Shum, Y.H., **Galang, C.M.**, & Brass, M. (In Prep.). Stimulating Your Voluntariness: What Can Brain Stimulation Studies Tell Us about Intention and Voluntary Behaviors?
- **Galang, C.M.,** Jenkins, M., Sanders, T., Vijh, R., & Obhi, S.S. (In Prep.). Motor preparation during pain observation does not influence event-related Mu/Beta desynchronization.

# Scholarships, Bursaries & Awards

#### **HUMBOLDT UNIVERSITY OF BERLIN**

Marie Skłodowska-Curie Actions (MSCA) Postdoctoral Fellowship (2023-2025) Value: €173 847

#### MCMASTER UNIVERSITY

NSERC Post-Graduate Scholarship – Doctoral (2018-2020)

Value: \$42 000

Society for the Improvement of Psychological Science (SIPS) Travel Award (2018)

Value: \$400

Department of Psychology, Neuroscience and Behaviour Travel Award (2018)

Value: \$400

Joyce Ontario Graduate Scholarship in Science (2017-2018)

Value: \$15 000 SPICES Grant (2017)

Value: \$2200 (funding for Open McMaster – an advocacy group on campus for Open

Access issues)

LiveLab Research Grant (2016)

Value: 3 days of facility use and 21 hours of technical support from LiveLab staff.

OpenCon Travel Scholarship (2016)

Value: \$1500

Ontario Graduate Fellowship (2016-2017)

Value: \$12 000

SSHRC Canada Graduate Scholarship – Master's Level (2015-2016)

Value: \$17 500

Ontario Graduate Scholarship (2015-2016, Declined for SSHRC Award)

Value: \$15 000

#### UNIVERSITY OF TORONTO

Gordon Cressy Leadership Award (2014)

Value: Highest student leadership award given by the University of Toronto at large

University College Merit Award (2014)

Value: Highest student leadership award given by University College

C.L. Burton Open Scholarship (2013-2014)

Value: \$500

Student Life Bursary (2012-2014)

Value: \$3100

Sunflower Scholarship (2012-2013)

Value: \$200

Dura Burke Leadership Award (2011-2012)

Value: \$500

# **Presentations**

# Conference Presentations

- **Galang, C.M.** & Obhi, S.S. (2019). *Motor excitability during pain observation does not match behavioural response times after pain observation: A pre-registered study.* Poster presented at the 29<sup>th</sup> annual meeting of the Canadian Society for Brain, Behaviour and Cognitive Science (CSBBCS). Waterloo, Canada.
- **Galang, C.M.** & Obhi, S.S. (2018). Observed Pain Intensity and Instructions to Empathize Modulate Response Facilitation. Poster presented at the Joint Meeting of the Canadian Society for Brain, Behaviour, and Cognitive Sciences (CSBBCS) and the Experimental Psychology Society (EPS). St. Johns, Canada.

- Jenkins, M., Galang, C.M., & Obhi, S.S. (2018). Visual Perspective Taking in Pain Observation: Evidence from Event-Related Potentials. Poster presented at the Joint Meeting of the Canadian Society for Brain, Behaviour, and Cognitive Sciences (CSBBCS) and the Experimental Psychology Society (EPS). St. Johns, Canada.
- **Galang, C.M.,** Kragness, H., & Obhi, S.S. (2017). *Effects of social power on spontaneous synchronization*. Poster presented at the 13<sup>th</sup> annual NeuroMusic Conference. Hamilton, Canada.
- **Galang, C.M.** & Obhi, S.S. (2017). Feeling powerless decrease frontal left-hemisphere activity. Poster presented at the 8<sup>th</sup> annual meeting of the Society for Social Neuroscience (S4SN). Washington D.C., USA.
- **Galang, C.M.**, Naish, K., Rajagobal, A., & Obhi, S.S. (2016). *Cross-Cultural Differences in Empathic Sensorimotor Resonance*. Poster presented at the 26<sup>th</sup> annual meeting of the Canadian Society for Brain, Behaviour and Cognitive Science (CSBBCS). Ottawa, Canada.

#### Within Department Presentations

- **Galang, C.M.** (2020). *The Replication Crisis*. Guest lecture presented for PSYCH 2C03 Social Psychology. Hamilton, Canada.
- **Galang, C.M.** (2019). Self-Other Control and Prosocial Behaviours: Automatic imitation does not predict levels of generosity during a modified dictator game. Cognition and Perception Seminar Series. Hamilton, Canada.
- **Galang, C.M.** (2019). The Social Cognitive Neuroscience of Empathy. Guest lecture presented for PNB2XF3 Perspectives in Psychology, Neuroscience and Behaviour. Hamilton, Canada.
- **Galang, C.M.** (2018). The Replication Crisis: What's the big deal? Guest lecture presented for PNB3RM3 Perspectives in Psychology, Neuroscience and Behaviour. Hamilton, Canada.
- **Galang, C.M.** (2018). *Empathy for Pain*. Presented at the Department of Psychology, Neuroscience and Behaviour Seminar Series. Hamilton, Ontario.
- Rushton, E., **Galang, C.M.,** & Obhi, S.S. (2018). *Caucasian Participants Show Opposite Racial Bias Effect When Observing Others in Pain*. Presented at the Department of Psychology, Neuroscience and Behaviour Thesis Poster Session. Hamilton, Ontario.
- MacGrath, S., **Galang, C.M.,** & Obhi, S.S. (2017). *Oops... I did it again: Sense of Agency for failed stopping.* Presented at the Department of Psychology, Neuroscience and Behaviour Thesis Poster Session. Hamilton, Ontario.
- **Galang, C.M.** (2017). *The Replication Crisis: What's the big deal?*. Guest lecture presented for PNB 3RM3 Research Methods. Hamilton, Ontario.

- **Galang, C.M.** (2017). An Introduction to the Social Neuroscience of Intergroup Relations. Guest lecture presented for PSYCH3CD3 Intergroup Relations. Hamilton, Ontario.
- Ku, M., **Galang, C.M.**, & Obhi, S. S. (2016). *The Effects of Power on Empathic Response to Pain (A Pilot Study)*. Presented at the NSERC USRA Poster Session, Hamilton, Ontario.
- **Galang, C.M.** (2016). The Social Cognitive Neuroscience of Empathy. Guest lecture presented for PNB2XF3 Perspectives in Psychology, Neuroscience and Behaviour. Hamilton, Canada.
- **Galang, C.M.** & Berry, M. (2016). *Introduction to Data Management & Processing.* Guest lecture presented for PNB2XF3 Perspectives in Psychology, Neuroscience and Behaviour. Hamilton, Canada.

# **Research Skills & Experience**

#### PRIMARY (through research)

Electroencephalography (EEG – Time, Frequency, and Time-Frequency Domains)

Single Pulse Transcranial Magnetic Stimulation (sTMS)

Electromyography (EMG)

Behavioural Methods (e.g. Reaction Time Paradigms & Self-Report Inventories)

#### SECONDARY (through course work and lab training)

Transcranial Direct Current Stimulation (tDCS)
Electrodermal Activity (EDA)
Motion Capture Tools
Eye Tracking Tools

**PROGRAMMING:** Python, MATLAB, R, JavaScript, C# and Unity

**REVIEWED FOR:** Biological Psychology; Psychonomic Bulletin & Review; Social Cognitive and Affective Neuroscience; Experimental Brain Research; Social Neuroscience; Acta Psychologica

# **Teaching Experience**

# HUMBOLDT UNIVERSITY OF BERLIN COURSE INSTRUCTOR

Sense of Agency Seminar (Winter 2023-2024)

Empirical Research Training – MIND Track (Summer 2024)

Empirical Research Training – MIND Track (Summer 2023)

Empirical Research Training – MIND Track (Summer 2022)

# **MCMASTER UNIVESITY**

#### **FELLOWSHIPS**

McCall MacBain Postdoctoral Fellows Teaching & Leadership Program: Oct. 2020 – April 2021

#### **COURSE INSTRUCTOR**

Perspectives in Psychology, Neuroscience and Behaviour (PNB 2XF3): Winter 2020

#### **TEACHING ASSISTANTSHIPS**

The Psychology of Aging (PSYCH 3AG3): Winter 2020

Science Communication (PNB 4SC6): Fall 2019

Social Cognitive Neuroscience (PNB 4E03): Winter 2019

Perspectives in Psychology, Neuroscience and Behaviour (PNB 2XF3): Winter 2019

Research Methods (PNB 3RM3): Fall 2018
Descriptive Statistics (PNB 2XE3): Winter 2018
Research Methods (PNB 3RM3): Fall 2017
Intergroup Relations (PSYCH 3CD3): Winter 2017

Perspectives in Psychology, Neuroscience and Behaviour (PNB 2XF3): Fall 2016 Integrated Psychology, Neuroscience and Behaviour (PNB 2XD3): Winter 2016

Social Psychology (PSYCH 2C03): Fall 2015

## **Administrative and Extra-Curricular Activities**

#### MCMASTER UNIVERSITY

Co-Founder and Co-Chair of ReproducibiliTea McMaster (2019-2021)

Departmental Colloquium Committee Co-Chair (2018-2020)

Graduate Student Conference Organizer (2017-2020)

NeuroTechX Hamilton Member (2017-Current)

Open McMaster Co-Founder (2017-2018)

OOOCanada (Open access, education, & data) Research Network Member (2016-2017)

Let's Talk Science Outreach Program Workshop Facilitator (2015-2017)

Departmental Colloquium Committee Member (2016-2017)

Department First-Year Graduate Student Representative (2016-2017)

McMaster Children & Youth University Workshop Facilitator (2015-2017)

#### UNIVERSITY OF TORONTO

University of Toronto Interdisciplinary Symposium on the Mind Committee Member (2013-2014)

Cognitive Science & Artificial Intelligence Students Association Volunteer (2013-2014)

University College Student Government President (2012-2013)

University College Student Government Academic Affairs Commissioner (2011-2012)

University College Student Government First-Year Representative (2009-2010)

University of Toronto/University College Orientation Week Leader & Executive (2010-2012)