

Patrick L. Carolan

Citizenship: Canadian, British

Education

Doctor of Philosophy, Psychology (Cognitive and Neural Sciences Specialization), Simon Fraser University (SFU), Burnaby, British Columbia, 2017

Dissertation Title: Searching “*Ineffectively*”: A Behavioral, Psychometric, and Electroencephalographic Investigation of Psychopathic Personality and Visual Search

- Supervised by Dr. Mario Liotti, Dr. John McDonald, and Dr. Kevin Douglas
- External Examiners: Dr. Rebecca Todd (University of British Columbia, Psychology), Dr. Yue Wang (SFU, Linguistics)

Comprehensives:

- Computer Programming in *Visual Basic* and *Matlab* for Sciences
- Certificate in Undergraduate Teaching and Learning
- TECHNICAL REPORT: Development and testing of the Emotional Stop-Signal task as a measure of treatment success in a relational intervention randomized-control trial

Additional coursework on experimental design and methodology:

- Classical and Modern Test Theory
- History/Philosophy of Science and Psychology
- Structural Equation Modeling (SEM), Covariance Structure Modeling (CSM), Confirmatory Factor Analysis (CFA), and Multivariate Analysis techniques

Master of Arts, Psychology (Law and Forensic Psychology Specialization), SFU, 2011

- Thesis title: Electrophysiology of dampening of emotional reactivity in psychopathic personality
- Supervised by Dr. Mario Liotti, and Dr. Kevin Douglas

Bachelor of Arts, Psychology, University of British Columbia (UBC), Vancouver, 2009

Associate of Arts, History, Capilano University, North Vancouver, British Columbia, 2006

- Dean’s List, 2005, 2006

Academic Interests

My research examines the interactions of affect, impulsivity, and risk taking with visual attention and working memory. I approach these topics from a cognitive-affective neuroscience perspective that seeks to map abstract psychological concepts to real neurological mechanisms. Throughout my research career this has been primarily through the use of event-related potential electroencephalography (ERP/EEG), behavioural measures, and psychometrics—all of which I support with strong, practical computer programming ability. Mirror these topics, my teaching interests include emotion, attention, memory, research methodology, experimental design, data analysis, and inferential statistics. I maintain an active role within my university community by participating in departmental programming and curriculum planning committees.

Awards, Distinctions and Fellowships

Major, national, and international

National Sciences and Engineering Research Council Doctoral Postgraduate Fellowship, 2012, \$63,000

Visceral Mind Summer School Fellowship, Bangor University, Wales, Septmeber 2011, all course fees, accommodations, and travel costs fully reimbursed

Independent organizations and conferences

Organization for Human Brain Mapping conference travel award, Spring 2013, \$700

University and departmental

SFU Graduate Travel Awards

- Spring 2017, \$589.67
- Spring 2016, \$600
- Spring 2012, \$625

SFU Graduate Fellowships

- Spring 2016, \$3250
- Summer 2012, \$6250
- Spring 2011, \$3125
- Summer 2010, \$6250

Undergraduate

Irving K. Barber Undergraduate Transfer Award, Fall 2006 \$5000

Publications

- Carolan, P. L.**, Jaspers-Fayer, F., Asmaro, D., Douglas, K., & Liotti, M. (2014). Electrophysiology of blunted emotional bias in psychopathic personality. *Psychophysiology*, *51*, 36-41.
doi:10.1111/psyp.12145
- Asmaro, D., **Carolan, P.**, & Liotti, M. (2013). Electrophysiological evidence of early attentional bias to drug-related pictures in chronic cannabis users. *Addictive Behaviors*, *39*, 114-121.
10.1016/j.addbeh.2013.09.012.
- Asmaro, D., Jaspers-Fayer, F., Sramko, V., Taake, I., **Carolan, P.**, & Liotti, M. (2012). Spatiotemporal dynamics of the hedonic processing of chocolate images in individuals with and without trait chocolate craving. *Appetite*, *58*, 790-799.
- Nagamatsu, L. S., **Carolan, P.**, Liu-Ambrose, T. Y. L., & Handy, T. C. (2011). Age-related changes in attentional control of the visual cortex: A selective problem in the left visual hemifield. *Neuropsychologia*, *49*, 1670-1678.
- Nagamatsu, L. S., Liu-Ambrose, T. Y. L., **Carolan, P.**, & Handy, T. C. (2009). Are impairments in visual-spatial attention a critical factor for increased Falls risk in seniors? An event-related potential study. *Neuropsychologia*, *47*, 2749-2755.

Conference Presentations

- Carolan, P. L.**, McDonald, J. J., & Liotti, M. (2017). ERP evidence of increased distractor salience AND suppression in psychopathic personality (target detection is unimpaired). Poster presented at the Cognitive Neuroscience Society 24th annual meeting, San Francisco, California.
- Wang, H., Kleffner, K., **Carolan, P. L.**, & Liotti, M. (2017). Reward Associations Modify Neural Representations: An Event-related Potentials Study. Poster presented at the Cognitive Neuroscience Society 24th annual meeting, San Francisco, California.
- Carolan, P. L.**, Liao, M., & Liotti, M. (2016). Visual search for emotional faces is serial, regardless of psychopathic personality traits. Poster presented at the Social and Affective Neuroscience Society 9th annual meeting, New York, New York.
- Wang, H., Kleffner, K., **Carolan, P. L.**, & Liotti, M. (2016). Acquired reward or punishment value modulates affective priming or attentional capture effects. Poster presented at the Social and Affective Neuroscience Society 9th annual meeting, New York, New York.
- Wang, H., Kleffner, K., **Carolan, P. L.**, & Liotti, M. (2016). Electrophysiological evidence that acquired value enhances stimulus processing in subsequent encounters. Poster presented at the Society for Affective Science 3rd annual meeting, Chicago, Illinois.

- Carolan, P. L.,** Kleffner, K., & Liotti, M. (2015). Emotion-regulation impedes inhibitory-control: Psychopathic traits moderate association in an emotional stop-signal task. Poster for the Society for Affective Science 2nd annual meeting, Oakland, California.
- Kleffner, K., **Carolan, P. L.,** & Liotti, M. (2015). Emotion-regulation and inhibitory control in an emotional stop-signal task: an ERP study. Poster for the Society for Affective Science 2nd annual meeting, Oakland, California.
- Carlson, R. W., Aknin, L. B., **Carolan, P. L.,** Liotti, M. (2015). P300 amplitude predicts intuitive prosociality for empathized targets. Poster for the Society for Personality and Social Psychology Emotion Preconference, 10th annual meeting, Long Beach, California.
- Carolan, P. L.,** Asmaro, D. T., & Liotti, M. (2013). Early attentional bias to emotional pictures: Evidence for a distinct frontal generator. Poster presentation at the meeting of the Organization for Human Brain Mapping, Seattle, Washington.
- Carolan, P. L.,** Japers-Fayer, F., Asmaro, D. T., Douglas, K. S., & Liotti, M. (2012). Electrocortical evidence of emotional reactivity dampening in psychopathic personality: Implications for etiology and treatability. Paper presentation at the meeting of the American Psychology-Law Society, San Juan, Puerto Rico.
- Asmaro, D. T., **Carolan, P. L.,** Liotti, M. (2011, September). The neural correlates of marijuana dependence: Differences in drug and emotional stimulus processing in habitual users and non-users. Poster session presented at the meeting of Society for Psychophysiology Research, Boston.
- Carolan, P. L.,** Wilson, C., Sramko, V., Liotti, M., & Douglas, K. (2011, June). Confirmatory factor analysis of gender and ethnicity for the Psychopathic Personality Inventory-Revised: Short Form. Poster session presented at the meeting of the International Association of Forensic Mental Health, Barcelona.
- Carolan, P. L.,** Jaspers-Fayer, F., Taake, I., Douglas, K. & Liotti, M. (2011, April). Abnormalities of the P3a wave in individuals high in psychopathic personality traits. Poster session presented at the meeting of the Cognitive Neuroscience Society, San Francisco.
- Nagamatsu, L. S., **Carolan, P.,** Liu-Ambrose, T. Y. L., & Handy, T. C. (2009). Do visual spatial attention-visuomotor interactions extend to locomotive movements? An ERP study of senior Fallers vs. non-Fallers. Poster session presented at the meeting of the Cognitive Neuroscience Society, San Francisco.
- Carolan, P.L.,** Metzack, P.D., Whitman, J.C., & Woodward. T.S. (2009). Reduced frontal activation in schizophrenics during processing of disconfirmatory evidence. Poster session presented at the UBC Department of Psychiatry Research Day, Vancouver

Published Abstracts

Asmaro, D. T., **Carolan, P. L.**, Liotti, M. (2011, September). The neural correlates of marijuana dependence: Differences in drug and emotional stimulus processing in habitual users and non-users. *Psychophysiology*, 48(S1), S92-93.

Carolan, P. L., Jaspers-Fayer, F., Taake, I., Douglas, K. & Liotti, M. (2011). Abnormalities of the P3a wave in individuals high in psychopathic personality traits. *Cognitive Neuroscience Society Annual Meeting Program 2011: A supplement of the Journal of Cognitive Neuroscience*.

Nagamatsu, L. S., **Carolan, P.**, Liu-Ambrose, T. Y. L., & Handy, T. C. (2009). Do visual spatial attention-visuomotor interactions extend to locomotive movements? An ERP study of senior Fallers vs. non-Fallers. *Cognitive Neuroscience Society Annual Meeting Program 2009: A supplement of the Journal of Cognitive Neuroscience*, 89.

Research Experience

Culture and Development Lab, SFU

- Postdoctoral researcher (present), Graduate Research Assistant (Jan 2017 – Sept 2017)
- Data management for undergraduate research assistant coding of caregiver-child interaction videos recorded with members of several preliterate cultures
- Contributed to development of cross-cultural behavioural naturalistic observation coding scheme with BORIS natural observation software
- Ongoing data quality control, and extraction of outcome variables for analyses

Laboratory for Affective and Developmental Neuroscience, SFU

- Graduate Research Assistant, 2009 – 2017
- Designed, implemented, and disseminated ERP studies examining affective and attention dysfunctions in clinical and subclinical populations
- Developed proficiency in multiple programming languages (Visual Basic, E-Prime, Excel) and multiple data analysis platforms (Matlab, R, SPSS, BESA, SPM5/7)
- Supervised, trained, and mentored seven undergraduate, honours and postgraduate students and research assistants

Canadian Biomarker Integration Network in Depression (CAN-BIND)

- Independent Contractor, June 2014 – Jan 2015
- Consulted on the installation and implementation of two research experiment tasks (built with E-Prime software) at multiple fMRI sites; redesigned the tasks for application at multiple, national EEG sites
- Collected and analyzed pilot EEG data, and produced reports on each task to assist with the development of further research hypotheses

Crime Fighter Lab, SFU

- Graduate Research Assistant, 2010 – 2014
- Interviewed patients in psychiatric institutions and offenders incarcerated in provincial correctional facilities for large scale risk assessment studies
- Became familiar with working with vulnerable populations in institutional settings
- Underwent background checks and received approval to conduct extensive institutional file reviews of criminal justice and mental health records for participants in longitudinal research studies

Woodward Lab, UBC

- Contract Research Assistant, 2008 – 2009
- Coordinated and scheduled participants and research assistants for fMRI and behavioural studies examining schizophrenia and decision making
- Developed proficiency analysing fMRI data using various platforms (Linux, Excel, Matlab, SPM5, MRICron)

Neuroimaging Lab, UBC

- Volunteer Research Assistant and Directed Studies Student, 2007 – 2008
- Conducted ERP research project, collected data, and train research assistants

Teaching Experience¹

Instructor, Langara College Psychology Department

PSYC1115 Introduction to Biological, Cognitive, and Developmental Psychology

- Fall 2017

Departmental Service and Committees

- Introductory Psychology Textbook Review Committee, Fall 2017

Sessional Instructor, SFU Psychology Department

PSYC100 Introduction to Psychology I

- Spring 2017

PSYC325 Learning and Memory

- Spring 2016, Summer 2016, Spring 2017, Summer 2017

Teaching Assistant, SFU Psychology Department: substantive classroom contact (tutorials/labs)

PSYC391/389 Special Topics in Emotion and Motivation

¹ Accompanying teaching dossier with detailed descriptions of course related duties and evidence of teaching ability available on request

- Spring 2014, Summer 2015

PSYC201 Research Methods

- Summer 2014, Summer 2013

PSYC300 Critical Issues in Psychology

- Summer 2012, Fall 2010, Spring 2010

Teaching Assistant, SFU Psychology Department: marker positions

PSYC221 Intro to Cognition

- Spring 2015

PSYC330 Attention

- Spring 2013

PSYC210 Introduction to Data Analysis

- Spring 2012, Fall 2011, Spring 2011

PSYC382 Cognitive Neuroscience

- Summer 2011

PSYC100 Introduction to Psychology I

- Fall 2009

Guest Lecturer

PSYC102 Introduction to Psychology II, SFU, Surry Campus, British Columbia, March 6, 2013

Supervisory Experience

Undergraduate research assistants and honours students

- Arpit Toteja (paid research assistant), present
- Sylvie Couture-Nowak (honours student), completed 2017
- Brendan Torok (volunteer research assistant), completed 2017
- Susanna Piasecki (honours student), completed 2017
- Yingrui Xu (volunteer research assistant), completed 2015
- Huan Wang (honours student), completed 2015
- Megan Liao (paid research assistant), completed 2013
- Ryan Carlson (honours student), completed 2013
- Adam Burnett (honours student), completed 2011

Teaching assistants

- Caitlyn McColeman (graduate student), 2017 summer
- Adam Burnett (graduate student), 2017 summer
- Taylor Willi (graduate student), 2017 spring
- Carla Oberth (graduate student), 2017 spring
- Sarah Power (graduate student), 2017 spring
- Sylvie Couture-Nowak (undergraduate honours student), 2017 spring
- Regard Booy (graduate student), 2016 summer, 2017 spring
- Killian Kleffner (graduate student), 2016 spring and summer
- Adam Burnett (graduate student), 2016 summer

Professional Development**General Laboratory Safety**, Environmental Health and Research Safety Department, SFU, Fall 2016

- Half-day seminar on general laboratory safety procedures and topics, including: Health & Safety Policy, Accidents & Incidents, Worksite Inspections, Emergency Preparedness, Cryogenic Gases, Compressed Gases, and Electrical Safety

Certificate Program in Teaching and Learning, Teaching and Learning Centre, SFU, 2013

- 13 week course on student-centred instruction at the post-secondary level, completed in fulfillment of PhD Comprehensive Examination
- Designed an Upper Division Undergraduate course, Cognitive Neuroscience of Attention and Emotion, and a teaching portfolio

Instructional Skills Workshop, Teaching and Learning Centre, SFU, Summer 2013

- Intensive 3 day workshop on student-centred instruction at the post-secondary level

Programming in Visual Basic; Matlab for Science Students, Computer Science, SFU, Fall 2013

- Two Introductory level courses on Computer Science Theory and Programming in languages Visual Basic and Matlab, completed in fulfillment of a PhD Comprehensive Examination
- Developed a strong understanding of object based programming, data types and structures, and project implementation

Visceral Mind Summer School, Bangor University, Wales, UK, September 2011

- Intensive week long course (40 hours) on human neuroanatomy
- Received hands on training in through human brain dissection labs, case interviews, and computer analysis

Violence risk assessment workshop, Proactive Resolutions, SFU, Spring 2010

- Trained in evaluation of psychopathy using the PCL-R and PCL-R: Screening Version, and HCR-20 structured professional judgement violence risk assessment

SPM Short Course, Wellcome Trust Centre for Neuroimaging, UBC, Fall 2010

- Trained in use of Statistical Parametric Mapping software (SPM7) for fMRI and PET

Programming in E-Prime Tutorial, Laboratory for Affective and Developmental Neuroscience, SFU, 2009

- Step by step instruction on experimental design and implementation for ERP research using E-Prime software and Brain Electrical Source Analysis (BESA)

Conference Attendance

Cognitive Neuroscience Society

- San Francisco, 2017
- San Francisco, 2011

North West Cognition and Memory

- Vancouver 2016
- Surrey, 2013
- Burnaby, 2012

Social and Affective Neuroscience Society, New York, 2016**Society for Affective Science**, Oakland, 2015**Organization for Human Brain Mapping**

- Seattle, 2013
- Barcelona, 2010

American Psychology-Law Society

- San Juan, Puerto Rico, 2012
- Vancouver, 2010

Community Involvement

SFU Centre for Students with Disabilities

- **Exam Assistant**, 2013 – 2017: Worked directly with students requiring approved individualized accommodations by setting up and invigilating exams; helped foster a cooperative team environment; addressed the needs of students, while also ensuring examination integrity

SFU Graduate Student Society (GSS)

- **Electoral Officer**, 2014 –2015: Oversaw four elections for key student government positions; Organized and facilitated candidate meet-and-greet events; Ensured fair and open election access to all members of the SFU graduate student community.

- **Governance Committee Member**, 2013 –2015: Small working group committee providing feedback on internal governance documents, financial planning and major decisions of the SFU graduate student society
- **Representative to Council**, 2012 – 2014: Represented interests of Psychology Graduate Students at the highest decision-making body of the graduate student union; Participated in policy development, strategic planning, U-pass, health plan and budget processes

Psychology Graduate Student Caucus

- **Treasurer**, 2013 – 2015; Implemented planning of annual budget and standardized several caucus financial practices; maintained record of caucus finances; submitted check requisitions for member reimbursements; successfully applied for several GSS Caucus Funding Grants in support of additional networking, social, and orientation events
- **Departmental Representative**, 2011 – 2012: Identified and promote intellectual and academic concerns of graduate students and relayed information from departmental meetings to fellow caucus members
- **Social Coordinator**, 2010 – 2011; Identified and promoted intellectual, personal, and emotional-wellbeing concerns of graduate students by organizing outings and hosting social events