Travis LaCroix, PhD | Curriculum Vitae

CONTACT INFORMATION	✉ Mila - Québec AI Institute 6666 St Urbain Montréal, QC, H2S 3H1	✉ lacroixt@mila.quebec ✉ travis.lacroix@utoronto.ca 🌐 travislacroix.github.io	

CITIZENSHIP
Canada

AREAS OF SPECIALISATION
Philosophy and Ethics of AI & Emerging Technologies
Philosophy of Language & Linguistics

AREAS OF COMPETENCE
Social Dynamics, Norms, and Conventions
Classical & Evolutionary Game Theory
Traditional & Formal Epistemology
General Philosophy of Science

APPOINTMENTS

University of Toronto, Toronto, Ontario CAN
Department of Philosophy
Schwartz Reisman Institute for Technology and Society
   Postdoctoral Fellow - Social Cognition, 2020 – 2021
      Supervisor: Jennifer Nagel

Université de Montréal, Montréal, Québec CAN
Mila - Québec Artificial Intelligence Institute
Department of Computer Science and Operations Research
   Postdoctoral Fellow - Ethically Aligned Artificial Intelligence, 2020 – 2021
      Supervisor: Yoshua Bengio (Mila / UdeM)
               Dominic Martin (UQàM)

Mila - Québec Artificial Intelligence Institute, Montréal, Québec CAN
   Visiting Researcher / Research Assistant, 2018 – 2020
      Supervisor: Yoshua Bengio

Concordia University, Montréal, Québec CAN
   Coordinator, *Social Justice Centre*, 2019 – 2021

EDUCATION

University of California, Irvine, Irvine, California USA
Ph.D, Philosophy, March 2020. GPA: 3.97/4.00
Department of Logic and Philosophy of Science
   Dissertation: "Complex Signals: Modularity, Reflexivity, & Hierarchical Structure"
   Committee: Jeffrey A. Barrett (Chair)
            Brian Skyrms
            Simon Huttegger
            Cailin O'Connor

M.A., Social Science, March 2018
Institute for Mathematical Behavioral Science

EDUCATION
CONT'D

Simon Fraser University, Burnaby, British Columbia CAN
M.A., Philosophy, April 2016. GPA: 4.05/4.33

Thesis Topic: "On Signalling Games and Their Models"
Committee: Nicolas Fillion (Chair)
Matt DeVos (External, Mathematics)

University of British Columbia, Vancouver, British Columbia CAN
B.A. (Hons.), Philosophy; English Literature, April 2014. GPA: 81.5/100

First-class standing

Camosun College, Victoria, British Columbia CAN
A.A., English, April 2011. GPA: 8.14/9

Canadian Institute For Advanced Research

CIFAR Deep Learning / Reinforcement Learning Summer School, Summer 2020.

EXTERNAL
CONSULTING

Bank of Canada, Ottawa, Ontario CAN

Expert Consultant on *AI Ethics and Data Science* (2020)

PUBLICATIONS

Journal Articles

8. Travis LaCroix and Cailin O'Connor. 2021. "Power by Association." *Ergo* (Accepted).

7. Travis LaCroix. 2021. "Reflexivity, Functional Reference, and Modularity: Alternative Targets for Language Origins." *Philosophy of Science* (Accepted).

6. Travis LaCroix, Anders Geil, and Cailin O'Connor. 2020. "The Dynamics of Retraction in Epistemic Networks." *Philosophy of Science* (Forthcoming).
doi.org/10.1086/712817

5. Jeffrey A. Barrett and Travis LaCroix. 2020. "Epistemology and the Structure of Language." *Erkenntnis* (Forthcoming).
doi.org/10.1007/s10670-020-00225-4

4. Travis LaCroix. 2020. "Communicative Bottlenecks Lead to Maximal Information Transfer." *Journal of Experimental and Theoretical Artificial Intelligence* (2020) 32(6): 997–1014.
doi.org/10.1080/0952813X.2020.1716857

3. Travis LaCroix. 2019. "Using Logic to Evolve More Logic: Composing Logical Operators via Self-Assembly." *British Journal for the Philosophy of Science* (Forthcoming).
doi.org/10.1093/bjps/axz049

2. Travis LaCroix. 2019. "Evolutionary Explanations of Simple Communication: Signalling Games and Their Models." *Journal for General Philosophy of Science / Zeitschrift für allgemeine Wissenschaftstheorie* (2020) 51(1): 19–43.
doi.org/10.1007/s10838-019-09481-7

1. Travis LaCroix. 2018. "On Salience and Signalling in Sender-Receiver Games: Partial Pooling, Learning, and Focal Points." *Synthese* (2020) 197(4): 1725–1747.
doi.org/10.1007/s11229-018-1766-z

Conference Proceedings

3. Michael Noukhovitch, Travis LaCroix, Angeliki Lazaridou and Aaron Courville. 2021. "Emergent Communication under Competition." In U. Endriss, A. Nowé. F. Dignum, and A. Lomuscio (eds.), *Proc. of the 20th International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2021)*, London, UK, 3–7 May 2021, International Foundation for Autonomous Agents and Multiagent Systems.

2. Michael Noukhovitch, Travis LaCroix, Angeliki Lazaridou, and Aaron Courville. 2020. "Emergence of Communication with Selfish Agents. (Extended Abstract)" In Andrea Ravignani, Chiara Barbieri, Molly Flaherty, Yannick Jadoul, Ella Lattenkamp, Hannah Little, Mauricio Martins, Katie Mudd, Tessa Verhoef (eds.), *The Evolution of Language: Proceedings of the 13th International Conference.*

1. Travis LaCroix. 2019. "Biology and Compositionality: Empirical Considerations for Emergent-Communication Protocols." *NeurIPS 2019 Workshop on Emergent Communication: Towards Natural Language.*
   arxiv.org/abs/1911.11668

ARTICLES

Papers Under Review
(Drafts available upon request)

Under Review

"Accounting for Polysemy and Role Asymmetry in . . . Compositional Signals"
"Emergent Communication & Conflict of Interest" (w/ M. Noukhovitch, A. Courville)
"If Gradualism Is the Correct Approach to Language Origins. . . "
"Information and Meaning in the Evolution of Compositional Signals"
"Learning from Learning Machines" (w/ Y. Bengio)
"The Linguistic Blind Spot of Value-Aligned Agency, Natural and Artificial"
"The Tragedy of the AI Commons" (w/ A. Mohseni)
"What Russell Can Denote"

CONFERENCE
PRESENTATIONS

Refereed Talks

15. "Reflexivity, Functional Reference, & Modularity: Targets for Language Origins"
    Philosophy of Science Association
    Baltimore, USA, 11–14 November 2021.

14. "If Gradualism is the Correct Approach to Language Origins, Then Compositionality is not a Plausible Explanatory Target"
    Canadian Philosophical Association
    London, Canada, 1–4 June 2020. [*Cancelled due to* COVID-19]

13. "Learning from Learning Machines: Optimisation, Rules, & Social Norms"
    (T. LaCroix and Y. Bengio)
    Canadian Society for the History & Philosophy of Science
    London, Canada, 30 May - 1 June 2020. [*Cancelled due to* COVID-19]

12. "Emergent Communication Under Conflict of Interest"
    (M. Noukhovitch, T. LaCroix, and A. Courville)
    EvoLang XIII: Evolution of Language International Conferences
    Brussels, Belgium, 14–17 April 2020. [*Cancelled due to* COVID-19]

11. "Learning from Learning Machines: Optimisation, Rules, & Social Norms"
    (T. LaCroix and Y. Bengio)
    Artificial Intelligence and Moral Learning, Symposium at AISB-2020:
    Society for the study of artificial intelligence and simulation of behaviour
    London, UK, 6–9 April 2020. [*Cancelled due to* COVID-19]

10. "Learning from Learning Machines: Optimisation, Rules, & Social Norms"
    (T. LaCroix and Y. Bengio)
    Canadian Society for Epistemology
    Montréal, Québec, 14–16 November 2019.

9. "Accounting For Role-Asymmetries In the Evolution of Compositional Signals"
   Canadian Philosophical Association
   Vancouver, Canada, 1–4 June 2019.

8. "Using Logic to Evolve More Logic: Composing Logical Operators via Self-Assembly"
   Society for Exact Philosophy
   Toronto, Canada, 17–19 May 2019.

7. "Using Logic to Evolve More Logic: Composing Logical Operators via Self-Assembly"
   American Philosophical Association, Pacific Division
   Vancouver, Canada, 17–20 April 2019.

6. "Less is More: Degrees of Compositionality for Complex Signals"
   Philosophy of Science Association
   Seattle, USA, 1–4 November 2018. *Symposium Contribution.*

5. "Reference by Proxy and Truth-in-a-Model"
   Western Canadian Philosophical Association
   Calgary, Canada, 26–28 October 2018.

4. "On The Role of Power in the Evolution of Inequitable Norms"
   (T. LaCroix and C. O'Connor)
   L'Association Canadienne de Philosophie
   Montréal, Québec, 4–7 June 2018.

3. "The Role of Power in the Evolution of Inequitable Norms"
   (T. LaCroix and C. O'Connor)
   Latin American Association for Analytic Philosophy, and
   Colombian Conference on Logic, Epistemology, and Philosophy of Science
   Villa de Leyva, Colombia, 16–18 May 2018.

2. "On Salience and Signaling in Sender-Receiver Games"
   Western Canadian Philosophical Association
   Regina, Canada, 13–15 October 2017.

1. "Signalling Games & Their Models"
   Colombian Conference on Logic, Epistemology, & Philosophy of Science
   Bogotá, Colombia, 17–19 February 2016.

Invited Talks

2. "The Tragedy of the AI Commons"
   (T. LaCroix and A. Mohseni)
   Weekly Seminar, Schwartz Reisman Institute for Technology & Society
   Toronto, Canada, 9 December 2020

1. "Epistemology and the Structure of Language"
   (J. A. Barrett and T. LaCroix)
   Concordia Research Symposium in Philosophy (CRSP) *Winter 2020*
   Montréal, Québec, 7 February 2020.

Poster Presentations

2. "Cheap-Talk Declarations and the Tragedy of the AI Commons"
   (T. LaCroix and A. Mohseni)
   Philosophy of Science Association
   Virtual Poster Forum: January, February 2021
   In-Person Poster Forum: Baltimore, USA, 11–14 November 2021.

1. "Biology and Compositionality"
   Neural Information Processing Systems (NeurIPS) 2019
   Workshop on Emergent Communication
   Vancouver, Canada, 8–14 December 2019.

Invited Commentaries

3. "A Pragmatic-Semiotic Defence of Bivalent Logic" (Marc Champagne) CPA/ACP 2019 Annual Congress, University of British Columbia, Vancouver, Canada, 1–4 June 2019.

2. "Responsibility for Saying and Asserting" (Henry Schiller) CPA/ACP 2018 Annual Congress, Université du Québec à Montréal, Montréal, Canada, 4–7 June 2018.

1. "Simplicity and A Priori Probability Principles" (Noa Latham) CPA/ACP 2018 Annual Congress, Université du Québec à Montréal, Montréal, Canada, 4–7 June 2018.

ACADEMIC
EXPERIENCE

Principal Instructor

University of Toronto

Topics in Philosophy of Science [scheduled]   Summer 2021
    Department of Philosophy (415H)

Teaching Assistant

University of California, Irvine

Inductive Logic, Simon Huttegger   Spring 2018
    Department of Logic and Philosophy of Science (31)
    Department of Philosophy (31)

Introduction to Linguistics, Arunima Choudhury   Winter 2018
     Department of Linguistics (3)

Acquisition of Language, Lisa Pearl   Fall 2017
     Department of Linguistics (51)
     Department of Cognitive Sciences (56)

Inductive Logic, Simon Huttegger   Spring 2017
     Department of Logic and Philosophy of Science (31)
     Department of Philosophy (31)

Probability and Statistics for Economics I, Kent Johnson   Winter 2017
     Department of Economics (15A)

Simon Fraser University

Critical Thinking, Jillian McIntosh   Spring 2016
     Department of Philosophy (xx1)

Critical Thinking, Jillian McIntosh   Fall 2015
     Department of Philosophy (xx1)

Critical Thinking, Jillian McIntosh   Spring 2015
     Department of Philosophy (xx1)

Introduction to Ethics, Evan Tiffany   Fall 2014
     Department of Philosophy (120W)

Guest Lectures

University of California, Irvine

"Language and Cognition" *Acquisition of Language* (Linguistics/Psychology), 1 Dec. 2017.

Research Assistant

University of California, Irvine

Social Dynamics and Diversity in Epistemic Communities
     Cailin O'Connor (NSF Grant 1535139)   2017 – 2019

Simon Fraser University

Constructing Questions for Critical Thinking
     Jillian McIntosh   Spring 2015

University of British Columbia

Aristotle's Earlier Logic
     John Woods   Summer 2014

GRANTS AND
FELLOWSHIPS

Research Awards

Fonds de Recherche du Québec – Société et Culture, Bourse postdoctorale [Postdoctoral fellowship], University of Calgary (CAD 110,000), DECLINED, 2020-2022

Social Sciences and Humanities Research Council, Joseph-Armand Bombardier Canada Graduate Scholarships, Simon Fraser University (CAD 17,500), 2015-2016

Social Sciences and Humanities Research Council, Joseph-Armand Bombardier Canada Graduate Scholarships, University of British Columbia (CAD 17,500), DECLINED, 2014-2015

Academic Awards

University of California, Irvine

Associate Dean's Graduate Fellowship (USD 6,900), 2020, DECLINED.

Chancellor's Club Fund for Excellence Fellowship (USD 12,000), 2019, NOMINATED.

Justine Lambert Graduate Prize in the Foundations of Science, for "On Salience and Signaling: Partial Pooling, Learning, and Focal Points" (USD 1000), 2018.

Social Science Merit Fellowship (USD 257,818), 2016–2022

Simon Fraser University

Graduate Fellowship (CAD 6250), 2015

University of British Columbia

John Alexander Scholarship in Humanities (CAD 1500), 2014

Robert and Kazuko Barker Award (CAD 225), 2014

PROFESSIONAL SERVICE

Journal Referee. *Proceedings of the Royal Society B: Biological Sciences* (2020); *British Journal for the Philosophy of Science* (2020, 2019); *Synthese* (2020); *Erkenntnis* (2020); *Journal of Experimental and Theoretical Artificial Intelligence* (2020); *Games* (2020); *International Studies in the Philosophy of Science* (2020); *Inquiry: An Interdisciplinary Journal of Philosophy* (2019)

Conference Referee. CoopAI2020: Cooperative AI - NeurIPS 2020 Workshop (2020); EvoLang XIII: Evolution of Language International Conferences (2020); The Vancouver Summer Philosophy Conference (2019).

Symposium Organiser. "Evolutionary Explanations of Compositional Communication" Philosophy of Science Association 2018 Biennial Meeting, November, 2018.

Supervision. Schwartz Reisman Institute for Technology and Society, Graduate Fellows Cohort Lead (15 Graduate Students, 2020).

Chair. The Vancouver Summer Philosophy Conference (19–23 August 2018, Vancouver, CAN); F-SEW: Formal Social Epistemology Workshop (25–26 May 2018, Irvine, USA); The Western Canadian Philosophical Association 54th Annual Meeting (13–15 October 2017, Regina, CAN); The Ninetieth Annual Meeting of the American Philosophical Association, Pacific Division (30 March – 3 April 2016, San Francisco, USA).

Public Philosophy. United Nations Educational, Scientific and Cultural Organisation (UNESCO) global consultation on the ethics of artificial intelligence (2020).

SPECIALISED TRAINING	*Concordia University*	
	Sexual Violence Awareness & Prevention Training	Fall 2019, 2020
	University of California, Irvine	
	Sex Offense Prevention Training	Fall 2017
	Teaching Assistant Professional Development Program	Fall 2016
	Simon Fraser University	
	TA/TM Day: Teaching Orientation Program	2014–2016

LANGUAGES   English (native), French (intermediate)

TECHNICAL CAPACITIES

Mathematics: ODEs / PDEs, Linear Algebra, Multivariate / Vector Calculus

Logic: Set Theory, Modal Logic, Predicate Logic

Programming Languages: Python, Java, Javascript

Markup: LaTeX, HTML, CSS

Computation and Graphing: R, MatLab, Excel

AFFILIATIONS

Canadian Philosophical Association
Philosophy of Science Association
Society for Exact Philosophy
Canadian Society for the History and Philosophy of Science
American Philosophical Association

REFERENCES   Confidential letters of reference available upon request, via Interfolio.

Jennifer Nagel, *Professor*

Department of Philosophy
University of Toronto

Postdoctoral supervisor

Yoshua Bengio, *Professor*

Mila - Québec Artificial Intelligence Institute
Department of Computer Science & Operations Research
Université de Montréal

Postdoctoral supervisor

Dominic Martin, *Professeur*

Département d'organisation et ressources humaines
Université du Québec à Montréal

Postdoctoral supervisor

Jeffrey A. Barrett, *Chancellor's Professor*

Department of Logic and Philosophy of Science
University of California, Irvine

Dissertation committee chair; doctoral supervisor; co-author

Joshua Armstrong, *Assistant Professor*

Department of Philosophy
University of California, Los Angeles

Academic colleague (external)

Cailin O'Connor, *Associate Professor*

Department of Logic and Philosophy of Science
University of California, Irvine

Committee member; co-author

Simon Huttegger, *Professor*

Department of Logic and Philosophy of Science
University of California, Irvine

Committee member

Brian Skyrms, *Distinguished Professor*

Department of Logic and Philosophy of Science
University of California, Irvine

Committee member

Pablo Gilabert, *Professor*

Department of Philosophy
Concordia University

Director, Social Justice Centre

Last updated: December 17, 2020