

Travis LaCroix, PhD | CURRICULUM VITAE

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Dept. of Philosophy, Dalhousie University
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CITIZENSHIP Canada

AREAS OF SPECIALISATION Philosophy and Ethics of AI & Emerging Technologies
Social Dynamics, Norms, and Conventions

AREAS OF COMPETENCE Philosophy of Language & Linguistics
Classical & Evolutionary Game Theory
Traditional, Formal, & Social Epistemology
General Philosophy of Science

APPOINTMENTS **Dalhousie University**, Halifax, Nova Scotia CAN
Department of Philosophy, Faculty of Arts and Social Science
Faculty of Graduate Studies
Assistant Professor, Ethics and Computer Science, 2021 – 2024

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

PhD, Philosophy, March 2020

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

Master of Arts, Social Science, March 2018

Institute for Mathematical Behavioral Science

Simon Fraser University, Burnaby, British Columbia CAN

Master of Arts, Philosophy, April 2016

Thesis Topic: “On Signalling Games and Their Models”

Committee: Nicolas Fillion (Chair)

Matt DeVos (External, Mathematics)

University of British Columbia, Vancouver, British Columbia CAN

Bachelor of Arts (Hons.), Philosophy; English Literature, April 2014

First-class standing

Camosun College, Victoria, British Columbia CAN

Associate of Arts, English, April 2011

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* (2020-2021)

PUBLICATIONS

Journal Articles (*Peer Reviewed*)

8. Travis LaCroix. 2021. “Reflexivity, Functional Reference, and Modularity: Alternative Targets for Language Origins.” *Philosophy of Science* (2021, Forthcoming) 88(5). <https://doi.org/10.1086/715217>
7. Travis LaCroix and Cailin O’Connor. 2021. “Power by Association.” *Ergo* (Forthcoming).
6. Travis LaCroix, Anders Geil, and Cailin O’Connor. 2020. “The Dynamics of Retraction in Epistemic Networks.” *Philosophy of Science* (2021) 88(3): 415–438. 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 Saliency 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 (Peer Reviewed)

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. 974–982.
dl.acm.org/doi/10.5555/3463952.3464066
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*. 314–318.
brussels.evolang.org/proceedings/evolang13_proceedings.pdf
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

- “Cooperative communication & conflict of interest’ (w/ M. Noukhovitch, A. Courville)
- “Est-ce que vous compute? Code-switching, cultural identity, & AI” (w/ A. Falbo)
- “Information and meaning in the evolution of compositional signals”
- “Learning from learning machines: optimisation, rules, & norms” (w/Y. Bengio)
- “The linguistic blind spot of value-aligned agency, natural and artificial”
- “Moral dilemmas for moral machines”
- “The tragedy of the AI commons” (w/ A. Mohseni)
- “What Russell can denote: Aboutness & denotation between *Principles* & ‘OD’”

CONFERENCE
PRESENTATIONS**Refereed Talks** (*Peer Reviewed*)

18. “Moral dilemmas for moral machines”
American Philosophical Association, Pacific Division
Vancouver, Canada, 13–16 April 2022.
17. “The linguistic blind spot of value-aligned agency, natural and artificial”
Workshop on Normative Theory and Artificial Intelligence
Online, 15 November 2021.
16. “Reflexivity, functional reference, & modularity: Targets for language origins”
Philosophy of Science Association
Baltimore, USA, 11–14 November 2021.
15. “Est-ce que vous compute? Code-switching, cultural identity, & AI”
(A. Falbo and T. LaCroix)
Workshop on Feminism, Social Justice, and AI
Online, 26-28 July 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 AI 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 signalling 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 (*Not Peer Reviewed*)

5. “The linguistic blind spot of value-aligned agency, natural and artificial”
Philosophy Colloquium, Dalhousie University
Halifax, Canada, 26 November 2021
4. “Power by association”
(T. LaCroix and C. O’Connor)
Durham University, Department of Philosophy
Online, 12 May 2021
3. “AI human compatibility and Stuart Russell’s approach: What is the right proxy for artificial moral agency?”
(D. Martin and T. LaCroix)
Journée d’étude sur l’éthique des algorithmes (CRÉ-OBVIA)
Montréal, Québec, 12 February 2021
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 (*Peer Reviewed*)

3. “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.
2. “Emergent communication under competition”
(M. Noukhovitch, T. LaCroix, A. Lazaridou, and A. Courville)
Autonomous Agents and Multiagent Systems (AAMAS)
London, UK, 3–7 May 2021.
1. “Biology & compositionality: Empirical considerations for ‘Eme-Comm’ protocols”
Neural Information Processing Systems (NeurIPS) 2019
Workshop on Emergent Communication
Vancouver, Canada, 8–14 December 2019.

Invited Commentaries (*Not Peer Reviewed*)

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, Québec, 4–7 June 2018.
1. “Simplicity and a priori probability principles” (Noa Latham) CPA/ACP 2018 Annual Congress, Université du Québec à Montréal, Montréal, Québec, 4–7 June 2018.

TEACHING
EXPERIENCE

Instructor of Record

Dalhousie University

Social, Ethical and Professional Issues in Computing Science Department of Philosophy (2490) Faculty of Computer Science (3101)	Winter 2023 (<i>scheduled</i>)
Case Studies in Computing and Society Faculty of Computer Science (1801) Faculty of Arts & Social Science (1801)	Winter 2023 (<i>scheduled</i>)
Contemporary Philosophical Issues Department of Philosophy (4114 / 5115) Topic - Philosophy of Autism & Autistic Philosophy	Fall 2022 (<i>scheduled</i>)
Logic: Understanding of Scientific Reasoning Department of Philosophy (2660)	Fall 2022 (<i>scheduled</i>)

Social, Ethical and Professional Issues in Computing Science Winter 2022
 Department of Philosophy (2490)
 Faculty of Computer Science (3101)

Case Studies in Computing and Society Winter 2022
 Faculty of Computer Science (1801)
 Faculty of Arts & Social Science (1801)

Topics in Ethics I Fall 2021
 Department of Philosophy (4114 / 5115)
Topic - Evolutionary Ethics

University of Toronto

Seminar in Philosophy of Science Summer 2021
 Department of Philosophy (455H)
Topic - Artificial Intelligence and the Value-Alignment Problem

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
ACTIVITIES

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 (FRQSC)
Bourse postdoctorale [Postdoctoral fellowship]
University of Calgary (CAD 110,000), DECLINED, 2020-2022

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

Social Sciences and Humanities Research Council (SSHRC)
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 for Excellence Fellowship (USD 12,000), 2019, NOMINATED.

Justine Lambert Graduate Prize in the Foundations of Science, for "On Saliency 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. *British Journal for the Philosophy of Science* (2021, 2020, 2019); *Dialogue: Canadian Philosophical Review / Revue canadienne de philosophie* (2021); *Synthese* (2021, 2020); *American Philosophical Quarterly* (2021); *Proceedings of the Royal Society B: Biological Sciences* (2021); *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).

Book Referee. The MIT Press (2021).

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

Programme Committee. Programme Committee Member, CoopAI2021: NeurIPS 2021 Cooperative AI Workshop (2021); Senior Programme Committee Member, Emergent Communication Workshop (EmeComm 2021), *Conference on Neural Information Processing Systems (NeurIPS, 2021)*; Programme Committee Member, *AAAI / ACM Conference on Artificial Intelligence, Ethics, and Society - AIES* (2021).

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

Graduate Supervision. Graduate Fellows Cohort Lead - Schwartz Reisman Institute for Technology and Society (15 Graduate Students, 2020-2021); Peer advisor - Mila Québec AI Institute Peer Advisor Program (2021).

Undergraduate Supervision. Ariel Rozinov, University of Toronto (2021).

Conference 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

University of Toronto

Course Instructor Training	Summer 2021
Basic Occupational Health & Safety Awareness Training	Summer 2021
Accessibility for Ontarians with Disabilities Act Training	Summer 2021

Mila - Québec AI Institute

Equity, Diversity and Inclusion in Academic Research	Winter 2021
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Concordia University

Sexual Violence Awareness & Prevention Training	Fall 2019, 2020
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University of California, Irvine

Sex Offence Prevention Training Fall 2017
 Teaching Assistant Professional Development Program Fall 2016

Simon Fraser University

Teaching Orientation Program 2014, 2015, 2016
 TA/TM Day: Teaching Orientation Program Fall 2015
 TA/TM Day: Teaching Orientation Program Spring 2015
 TA/TM Day: Teaching Orientation Program Fall 2014

University of British Columbia

Student Directed Seminar, Training Workshop Fall 2012

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: L^AT_EX, HTML, CSS, Markdown
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 *Available upon request.*