

## Travis LaCroix, PhD | CURRICULUM VITAE

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CONTACT INFORMATION	✉ Room 3180, Marion McCain Building Dept. of Philosophy, Dalhousie University 6135 University Avenue, PO Box 15000 Halifax Nova Scotia, B3H 4R2	✉ tlacroix@dal.ca 🌐 travislacroix.github.io ☎ +1 (902) 494-3518
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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*  
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  
Gillian Hadfield

**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	<p><b>University of California, Irvine</b>, Irvine, California USA</p> <p>PhD, Philosophy, March 2020. <i>Department of Logic and Philosophy of Science</i></p> <p>Dissertation: “Complex Signals: Modularity, Reflexivity, &amp; Hierarchical Structure” Committee: Jeffrey A. Barrett (Chair) Brian Skyrms Simon Huttegger Cailin O’Connor</p> <p>Master of Arts, Social Science, March 2018 <i>Institute for Mathematical Behavioral Science</i></p> <p><b>Simon Fraser University</b>, Burnaby, British Columbia CAN</p> <p>Master of Arts, Philosophy, April 2016.</p> <p>Thesis Topic: “On Signalling Games and Their Models” Committee: Nicolas Fillion (Chair) Matt DeVos (External, Mathematics)</p> <p><b>University of British Columbia</b>, Vancouver, British Columbia CAN</p> <p>Bachelor of Arts (Hons.), Philosophy; English Literature, April 2014. First-class standing</p> <p><b>Camosun College</b>, Victoria, British Columbia CAN</p> <p>Associate of Arts, English, April 2011.</p> <p><b>Canadian Institute For Advanced Research</b></p> <p>CIFAR Deep Learning / Reinforcement Learning Summer School, Summer 2020.</p>
EXTERNAL CONSULTING	<p><b>Bank of Canada</b>, Ottawa, Ontario CAN</p> <p>Expert Consultant on <i>AI Ethics and Data Science</i> (2020-2021)</p>
PUBLICATIONS	<p><b>Journal Articles</b> (<i>Peer Reviewed</i>)</p> <ol style="list-style-type: none"><li>8. Travis LaCroix. 2021. “Reflexivity, Functional Reference, and Modularity: Alternative Targets for Language Origins.” <i>Philosophy of Science</i> (2021, Forthcoming) 88(5). <a href="https://doi.org/10.1086/715217">https://doi.org/10.1086/715217</a></li><li>7. Travis LaCroix and Cailin O’Connor. 2021. “Power by Association.” <i>Ergo</i> (Forthcoming).</li><li>6. Travis LaCroix, Anders Geil, and Cailin O’Connor. 2020. “The Dynamics of Retraction in Epistemic Networks.” <i>Philosophy of Science</i> (2021) 88(3): 415–438. <a href="https://doi.org/10.1086/712817">doi.org/10.1086/712817</a></li><li>5. Jeffrey A. Barrett and Travis LaCroix. 2020. “Epistemology and the Structure of Language.” <i>Erkenntnis</i> (Forthcoming). <a href="https://doi.org/10.1007/s10670-020-00225-4">doi.org/10.1007/s10670-020-00225-4</a></li></ol>

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](https://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](https://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](https://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](https://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.  
<http://www.ifaamas.org/Proceedings/aamas2021/pdfs/p974.pdf>
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](https://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 machines and moral dilemmas”
- “The tragedy of the AI commons” (w/ A. Mohseni)
- “What Russell can denote: Aboutness & denotation between *Principles* & ‘OD’”

CONFERENCE  
PRESENTATIONS

**Refereed Talks** (*Peer Reviewed*)

17. “Moral machines and moral dilemmas”  
**American Philosophical Association, Eastern Division**  
Baltimore, USA, 5–8 January 2022.
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*)

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 and Compositionality”  
**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.

### ACADEMIC EXPERIENCE

#### Principal Instructor

##### *Dalhousie University*

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

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 Department of Logic and Philosophy of Science (31) Department of Philosophy (31)	Spring 2018
Introduction to Linguistics, Arunima Choudhury Department of Linguistics (3)	Winter 2018
Acquisition of Language, Lisa Pearl Department of Linguistics (51) Department of Cognitive Sciences (56)	Fall 2017
Inductive Logic, Simon Huttegger Department of Logic and Philosophy of Science (31) Department of Philosophy (31)	Spring 2017
Probability and Statistics for Economics I, Kent Johnson Department of Economics (15A)	Winter 2017

*Simon Fraser University*

Critical Thinking, Jillian McIntosh Department of Philosophy (xx1)	Spring 2016
Critical Thinking, Jillian McIntosh Department of Philosophy (xx1)	Fall 2015
Critical Thinking, Jillian McIntosh Department of Philosophy (xx1)	Spring 2015
Introduction to Ethics, Evan Tiffany Department of Philosophy (120W)	Fall 2014

**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 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.** *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.** 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 Offense Prevention Training	Fall 2017
Teaching Assistant Professional Development Program	Fall 2016

##### *Simon Fraser University*

Teaching Orientation Program	2014, 2015, 2016
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#### 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<sup>A</sup>T<sub>E</sub>X, 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

*Last updated: August 6, 2021*