Travis LaCroix, PhD │ Curriculum Vitae

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) 494-3628 +1 (902) 494-3518

CITIZENSHIP   Canada

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

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)*

Note: First-listed date refers to online-first publication;
Second-listed date refers to assignment of volume.

11. Arianna Falbo and Travis LaCroix. 2022. "Est-ce que vous compute? Code-switching, Cultural Identity, and AI." *Feminist Philosophical Quarterly* (Accepted).

10. Travis LaCroix and Aydin Mohseni. 2022. "The Tragedy of the AI Commons." *Synthese* (2022) 200(4): 1–33.
https://doi.org/10.1007/s11229-022-03763-2

9. Travis LaCroix. 2022. "Moral Dilemmas for Moral Machines." *AI and Ethics* (Forthcoming).
https://doi.org/10.1007/s43681-022-00134-y

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

7. Travis LaCroix. 2021. "Reflexivity, Functional Reference, and Modularity: Alternative Targets for Language Origins." *Philosophy of Science* (2021) 88(5): 1234–1245.
https://doi.org/10.1086/715217

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* (2022) 87(2): 953–967.
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* (2022) 73(2): 407–437.
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 (*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

Book Reviews (*Peer Reviewed*)

1. Travis LaCroix. 2022. 'Review of Ronald J. Planar and Kim Sterelny (2021) *From Signal to Symbol: The Evolution of Language*, Cambridge, MA: The MIT Press.' *Philosophy of Science* (Invited).

Popular Media (*Not Peer Reviewed*)

2. Travis LaCroix. 2022. "A Category Mistake: Benchmarking Ethical Decisions for AI Systems Using Moral Dilemmas" *Blog of the APA*, 16 June 2022.
   blog.apaonline.org/2022/06/16/a-category-mistake-benchmarking-ethical-decisions-for-ai-systems-using-moral-dilemmas/

1. Travis LaCroix. 2022. "Research Summary: 'Moral Dilemmas for Moral Machines'" *The AI Ethics Brief #103*. Montréal AI Ethics Institute. 14 June 2022.
   montrealethics.ai/moral-dilemmas-for-moral-machines/

ARTICLES

Papers Under Review
(*Drafts available upon request*)

Revise & Resubmit Decision Received

"Learning from learning machines: optimisation, rules, & norms" (w/ Y. Bengio) [R&R at *AI & Society*]

Under Review

"Information and meaning in the evolution of compositional signals"
"The linguistic blind spot of value-aligned agency, natural and artificial"
"Metaethical perspectives on 'benchmarking' AI ethics" (w/ A. S. Luccioni)

CONFERENCE
PRESENTATIONS

Refereed Talks (*Peer Reviewed*)

19. "Information and meaning in the evolution of compositional signals"
    Philosophy of Science Association
    Pittsburgh, USA, 10–13 November 2022.

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, 10 March 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*)

8. "On being in (autistic) community"
    Philosophy Colloquium, Dalhousie University
    Halifax, Canada, 26 November 2022

7. "Moral dilemmas for moral machines: Perspectives on 'benchmarking' ethics for AI"
    Philosophy Colloquium, Dalhousie University
    Halifax, Canada, 07 October 2022 [*Cancelled due to power outage*]

6. "Workshop Panel on Embedded EthiCS in FCS"
    Philosophy Colloquium, Dalhousie University
    Halifax, Canada, 24 June 2022

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	Winter 2024
Department of Philosophy (2490)	(*scheduled*)
Faculty of Computer Science (3101)	
Case Studies in Computing and Society	Winter 2024
Faculty of Computer Science (1801)	(*scheduled*)
Faculty of Arts & Social Science (1801)	
Topic - Artificial Intelligence and the Value-Alignment Problem	
Philosophy of Social Science	Fall 2023
Department of Philosophy (3520 / 5520)	(*scheduled*)
Department of Political Science (3496/5496)	
Logic: Understanding of Scientific Reasoning	Fall 2023
Department of Philosophy (2660)	(*scheduled*)

Social, Ethical and Professional Issues in Computing Science   Winter 2023
    Department of Philosophy (2490)
    Faculty of Computer Science (3101)

Case Studies in Computing and Society   Winter 2023
    Faculty of Computer Science (1801)
    Faculty of Arts & Social Science (1801)
    Topic - Artificial Intelligence and the Value-Alignment Problem

Topics in Philosophy of Psychology   Fall 2022
    Department of Philosophy (4070 / 5070)
    Topic - The Philosophy of Autism and Autistic Philosophy

Logic: Understanding of Scientific Reasoning   Fall 2022
    Department of Philosophy (2660)

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)
    Topic - Artificial Intelligence and the Value-Alignment Problem

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

TA Supervision

Dalhousie University

Case Studies in Computing and Society   Winter 2022
    Faculty of Arts and Social Science (1801)
      7 teaching assistants
Social, Ethical, and Professional Issues in Computing Science   Winter 2022
    Department of Philosophy (2490)
    Faculty of Computer Science (3101)
      2 teaching assistants

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 (B3Z) [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 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* (2022, 2021, 2020, 2019); *Episteme* (2022); *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).

Ethics Reviewer. *Thirty-Sixth Conference on Neural Information Processing Systems* (*NeurIPS*, 2022).

Programme Committee Member. Workshop on Gamification and Multiagent Solutions *International Conference on Learning Representations* (*ICLR*) (2022); *AAAI / ACM Conference on Artificial Intelligence, Ethics, and Society - AIES* (2022, 2021); *ACM Conference on Fairness, Accountability, and Transparency - ACM FAccT* (2022); *CoopAI2021: NeurIPS 2021 Cooperative AI Workshop* (2021).

Workshop Organisation. Scientific Advisor and Senior Programme Committee Member, Emergent Communication Workshop (EmeComm 2023); Scientific Advisor and Senior Programme Committee Member, Emergent Communication Workshop (EmeComm 2022), *International Conference on Learning Representations* (*ICLR*, 2022).

Symposium Organisation. "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. Delia Topitzer, Dalhousie University (2022), honour's thesis advisor; Amy Tenenbaum, Dalhousie University (2022); Ariel Rozinov, University of Toronto (2021).

Colloquium Chair. Department of Philosophy, Dalhousie University (Fall 2022).

Conference Chair. Philosophy of Science Association, (10–13 November 2022, Pittsburgh, USA); 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 (13–15 October 2017, Regina, CAN); 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).

IN THE MEDIA

Interviews

Interview with Ryan Bellefontaine. 2021. 'Should you delete Facebook? It's complicated' *The Signal*.

Engagement with Research

Article discussing LaCroix (2022): Jonny Thomson, 'Whose ethics should be programmed into the robots of tomorrow?' *Big Think*. 11 Apr 2022.
https://bigthink.com/thinking/robots-ethical-decisions/
White paper on Falbo and LaCroix (2022): 'Keeping with the status quo: Epistemic calcification and testimonial smothering in AI' *Feminism, Social Justice, and AI Workshop*.
Write up on LaCroix, Geil, O'Connor (2021): Rebecca Lea Morris, 'Why retracted papers continue to be cited and what we can do about it' *Medium* 22 Sep 2021.
https://medium.com/@rlmorris/why-retracted-papers-continue-to-be-cited

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
	Concordia University	
	Sexual Violence Awareness & Prevention Training	Fall 2019, 2020
	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: LaTeX, 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.*

Last updated: October 21, 2022