

Sander Beckers

Curriculum Vitae

e-mail: srekcebrednas@gmail.com

website: sanderbeckers.com

Research Areas

Areas of Specialization: Causality, Philosophy of AI, Philosophy of Science

Areas of Competence: Formal Epistemology, Logic, Ethics, Wittgenstein

Employment

- 2021-current Postdoctoral researcher, Cluster for excellence in Machine Learning for Science: Ethics and Epistemology of Machine Learning, University of Tübingen
- 2022 Spring Visiting Scholar (host: James Woodward)
Department of History and Philosophy of Science, University of Pittsburgh
- 2019-2021 Humboldt postdoctoral fellow (supervisor: Stephan Hartmann)
Munich Center for Mathematical Philosophy, LMU
- 2020 Fall NIAS-Lorentz Theme-group fellow on Explainable AI in medicine,
Netherlands Institute for Advanced Studies, Amsterdam
- 2019 January Visiting scholar (host: Frederick Eberhardt)
Division of the Humanities and Social Sciences, Caltech
- 2018-2019 Postdoctoral scholar (supervisor: Jan Broersen)
Department of Philosophy and Religious Studies, Utrecht University
- 2017 Fall Visiting postdoctoral scholar (supervisor: James Conant)
Institute of Philosophy, Leipzig University
- 2016-2017 B.A.E.F. Fellow (supervisor: Joe Halpern)
Department of Computer Science, Cornell University
- 2010-2011 Researcher at University of Leuven, EAVISE research group
Project: S.O.S. OpenCL: Multicore Cooking
- 2008-2009 internship as actuary, Aon Benfield Belgium and BNP Paribas Belgium, Employee Benefits

Education

- 2012-2016 Ph.D. in Computer Science, October 2016, University of Leuven
Dissertation: Actual Causation: Definitions and Principles
Supervisors: Hendrik Blockeel and Joost Vennekens
- 2011 Master in Mathematics, University of Leuven (distinction)
Dissertation: Deductive Reasoning in Guarded FO(ID)
Supervisor: Marc Denecker
- 2008 Bridge program in Mathematics, University of Leuven
- 2006 Master in Philosophy, University of Leuven (distinction)

Dissertation: Wittgenstein en het Ethische
Supervisor: Arnold Burms

2004 Bachelor in Philosophy, University of Antwerp (distinction)

Grants and Fellowships

2020 Fall	NIAS-Lorentz Theme Group
2019-2021	Humboldt Research Fellowship for Postdoctoral Researchers
2016-2017	Research Fellowship, Belgian American Educational Foundation
2012-2015	Ph.D. Grant for Fundamental Research, Flanders Innovation & Entrepreneurship

Refereeing

AAAI Conference on Artificial Intelligence (Program Committee 2017, 2020, 2021, 2022, 2023), AISTATS 2022, Analysis (2), Australasian Journal of Logic, Dialectica, Erkenntnis (3), Ethics and Information Technology, European Journal for Philosophy of Science, Information, International Joint Conference on Artificial Intelligence (Program Committee 2020), Journal of Causal Inference, Journal of Philosophical Logic (2), Journal of Social Philosophy, Kriterion, Mind, Minds and Machines (3), Philosophy and Theory of Artificial Intelligence, Philosophy of Science, Synthese (5), Review of Symbolic Logic, The Philosophical Review, Various AI workshops for AAAI, NeurIPS, ICML, etc.

Research

Under Review

- [1] Beckers, S. (under review). Discussion of “Difference-making Causation”, *Journal of Philosophy*.
- [2] Beckers, S. (under review). The Causal and the Epistemic Conditions for Moral Responsibility, *Minds & Machines*.
- [3] Beckers, S., Chockler, H., and Halpern, J.Y. (under review). A Causal Analysis of Harm, *NeurIPS 2022*.
- [4] Beckers, S., Chockler, H., and Halpern, J.Y. (under review). A Quantitative Account of Harm, *AAAI 2023*.

Publications

- [5] Beckers, S. (2022). Causal Explanations and XAI, *Causal Learning and Reasoning 2022*.
- [6] Beckers, S. (2021). Causal Sufficiency and Actual Causation, *Journal of Philosophical Logic*
- [7] Beckers, S. (2021). The Counterfactual NESS Definition of Causation, *AAAI2021*
- [8] Beckers, S. (2021). Equivalent Causal Models, *AAAI2021*
- [9] Beckers, S., Eberhardt, F., and Halpern, J.Y. (2019). Approximate Causal Abstraction, *UAI 2019*
- [10] Beckers, S. and Halpern, J.Y. (2019). Abstracting Causal Models, *AAAI2019*
- [11] Beckers, S. (2018). AAAI: an Argument Against Artificial Intelligence, *Philosophy and Theory of Artificial Intelligence 2017*.

- [12] Beckers, S. and Vennekens, J. (2018). A Principled Approach to Defining Actual Causation, *Synthese*.
- [13] Beckers, S. and Vennekens, J. (2017). The Transitivity and Asymmetry of Actual Causation, *Ergo*.
- [14] Beckers, S. and Vennekens, J. (2016). A General Framework for Defining and Extending Actual Causation using CP-logic, *International Journal for Approximate Reasoning*.
- [15] Beckers, S. (2017). AAAI: an Argument Against Artificial Intelligence, *Proceedings of the 3rd International Workshop on AI, Ethics and Society*.
- [16] Beckers, S. and Vennekens, J. (2015). Towards a General Definition of Actual Causation Using CP-logic, *CEUR Workshop Proceedings*.
- [17] Beckers, S. and Vennekens, J. (2015). Combining Probabilistic, Normative, and Causal Reasoning in CP-logic, *AAAI Spring Symposium on Logical Formalizations of Commonsense Reasoning*.
- [18] Beckers, S. and Vennekens, J. (2012). Counterfactual Dependency and Actual Causation in CP-logic and Structural Models: a Comparison, *STAIRS*.
- [19] Beckers, S., De Samblanx, G., De Smedt, F., Goedemé, T., Struyf, L., and Vennekens, J. (2012). Parallel hybrid SAT solving using OpenCL, *BNAIC*.
- [20] Beckers, S., De Samblanx, G., De Smedt, F., Goedemé, T., Struyf, L., and Vennekens, J. (2011). Parallel SAT-solving with OpenCL, *IADIS International Conference on Applied Computing*.

Talks

Conferences

- 2022 ‘Causal Explanations and XAI’, Causal Learning and Reasoning, Eureka, United States
- 2021 ‘The Counterfactual NESS Definition of Causation’, AAAI Conference on Artificial Intelligence, online
- 2021 ‘Equivalent Causal Models’, AAAI Conference on Artificial Intelligence, online
- 2019 ‘Formalizing Mental Causation’, EPSA conference, Geneva, Switzerland
- 2019 ‘Approximate Causal Abstraction’, UAI conference, Tel Aviv, Israel
- 2019 ‘Abstracting Causal Models’, DIEP Conference, Amsterdam, the Netherlands
- 2019 ‘Formalizing the Causal Conditions for Moral Responsibility’, REINS closing conference, Utrecht University, the Netherlands
- 2019 ‘Abstracting Causal Models’, AAAI Conference on Artificial Intelligence, Honolulu, United States
- 2018 ‘Formalizing Mental Causation’, OZSW conference, Enschede, the Netherlands
- 2018 ‘Causation and the Principle of Alternative Possibilities’, Causes, Norms, and Decisions Workshop, Hannover, Germany
- 2017 ‘A Formal Approach to Frankfurt-style Cases’, OZSW conference, Doorn, the Netherlands
- 2017 ‘AAAI: an Argument Against Artificial Intelligence’, Philosophy and Theory of Artificial Intelligence, Leeds, UK
- 2017 ‘AAAI: an Argument Against Artificial Intelligence’, European Conference for Analytic Philosophy, Munich, Germany

2017 ‘AAAI: an Argument Against Artificial Intelligence’, AAAI Workshop on AI, Ethics and Society, San Francisco

2016 ‘The Transitivity and Asymmetry of Actual Causation’, Philosophy of Science in a Forest, Doorn, the Netherlands

2015 ‘A Principled Approach to Defining Actual Causation’, Conference of Logic, Methodology and Philosophy of Science, Helsinki, Finland

2015 ‘Combining Probabilistic, Causal, and Normative Reasoning using CP-logic’, AAAI Spring Symposium: Commonsense Reasoning, Stanford University

2013 ‘Dual Inheritance Theory as an Integration of Biology and the Humanities’, Reduction and Emergence in the Sciences conference, Munich Center for Mathematical Philosophy

2013 ‘A Pragmatic Approach to Causality’, OZSW conference, University of Rotterdam

2013 ‘Actual Causation in Cases of Preemption: the CP-logic Approach’, Graduate Conference in Theoretical Philosophy, University of Groningen, the Netherlands

2012 ‘Actual Causation in Cases of Preemption: the CP-logic Approach’, Great Plains Graduate Conference in Philosophy, Kansas University

2012 ‘Counterfactual Dependency and Actual Causation in CP-logic and Structural Models: a Comparison’, STAIRS conference, Montpellier, France

2012 ‘Parallel hybrid SAT solving using OpenCL’, BNAIC, Maastricht University, the Netherlands

2011 ‘Parallel SAT-solving with OpenCL’, IADIS, Rio de Janeiro, Brazil

Invited Talks and Colloquia

2022 ‘Causal Abstractions and Causal Representation Learning’, Invited speaker, First Workshop on Causal Representation Learning, UAI, Eindhoven

2022 ‘Causal Sufficiency and Actual Causation’, Invited speaker, Online Causal Inference Seminar (online)

2021 ‘The Causal and Epistemic Conditions for Moral Responsibility’, Invited speaker, Christian List’s Research Seminar, LMU-Munich (online)

2021 ‘Causal Sufficiency and Actual Causation’, Invited speaker, Logic Seminar, University of Milan (online)

2021 ‘Reflections on the Causal Approach to Fair AI’, Invited speaker, AI Challenges to Established Legal Institutions Roundtable Conference, Monash University (online)

2021 ‘Actual Causation and Moral Responsibility’, Invited speaker, Cognition, Values, and Behaviour Lab Meetings, LMU-Munich, Germany (online)

2020 ‘Accountability in medical autonomous systems: ethical and epistemological challenges for explainable AI’, NIAS Theme group, NIAS seminar, Amsterdam, the Netherlands (online)

2020 ‘Formalizing Non-Reductive Supervenience using Causal Models with Constraints’, Invited speaker, Symposium on Interventionism and Causal Exclusion, Nijmegen, the Netherlands

2019 ‘Causation and the Principle of Alternative Possibilities’, Invited speaker, Free Will and Causality conference, Dusseldorf, Germany

2018 ‘Applying Causal Modeling to Philosophical Issues’, Invited talk, Logic and Metaphysics Workshop, CUNY

2017 ‘Formal Ethics’, Invited talk, Center for Human-Compatible AI, UC Berkeley

2015 ‘A Principled Approach to Defining Actual Causation’, Invited talk, Tilburg Center for Logic, Ethics, and Philosophy of Science, the Netherlands

2015 ‘The Problem of Actual Causation’, Epistemology Reading Group, Department of Linguistics and Philosophy, MIT

2014 ‘Actual Causation using CP-logic’, Declarative Languages and AI seminar, University of Leuven, Belgium

2013 ‘Actual Causation using CP-logic’, colloquium, Munich Center for Mathematical Philosophy

2013 ‘Actual Causation: the CP-logic Approach’, Invited talk, INRIA, Grenoble, France

2013 ‘Actual Causation in Cases of Preemption: the CP-logic Approach’, Center for Logic and Analytic Philosophy colloquium, University of Leuven, Belgium

2012 ‘Parallel hybrid SAT solving using OpenCL’, Declarative Languages and AI seminar, University of Leuven, Belgium

Teaching

Utrecht University

Undergraduate program Philosophy, tutorials:

2018-2019: Logic for philosophers

2018-2019: Epistemology and Philosophy of Science

2019: Philosophical Reflection on Scientific Models of Man

Undergraduate program in Artificial Intelligence, lectures:

2018: Introduction to Statistics

Master in Artificial Intelligence:

2018: Philosophy of AI, tutorials

2018-2019: Philosophy of AI, two guest lectures

University of Leuven

Undergraduate program Civil Engineering, exercise classes:

2014-2015 Introduction to Programming: Python

2012-2013 Introduction to Programming: Java

Undergraduate program Industrial Engineering, exercise classes:

2015: Introduction to the IDP knowledge base system

2014-2015 Introduction to Programming: Python

2010-2013 Introduction to Programming: C