

# Mario Günther

## RESEARCH PROFILE

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I apply logical and mathematical tools to philosophical problems in Epistemology, Metaphysics, and the Philosophies of Law and AI.

## EMPLOYMENT

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### 22- Assistant Professor

*Munich Center for Mathematical Philosophy*  
LMU MUNICH

### Visiting Assistant Professor 2024-7

CARNEGIE MELLON UNIVERSITY

### Academic Visitor 2022

UNIVERSITY OF EDINBURGH

### 19-21 Research Fellow

“Humanising Machine Intelligence”

AUSTRALIAN NATIONAL UNIVERSITY

### Academic Visitor 2021

LONDON SCHOOL OF ECONOMICS & POLITICAL SCIENCE

### 18-19 Research Fellow

“Reasoning with Conditionals” (DFG Project)

UNIVERSITY OF REGENSBURG

## EDUCATION

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### 2019 PhD in Philosophy

“Learning, Conditionals, Causation”

*Munich Center for Mathematical Philosophy & Graduate School of Systemic Neurosciences*

LMU MUNICH

Hannes Leitgeb, Stephan Hartmann

### 2015 Master in Logic and Philosophy of Science

“Non-Monotonic Logics, Artificial Neural Networks, and Complexity Considerations in the Horn Case”

*Munich Center for Mathematical Philosophy*

LMU MUNICH

### 2012 Bachelor in Philosophy and Cognitive Science

“The Methodology of Scientific Research Programmes as Modification of Popper’s Falsificationism”

ALBERT LUDWIG UNIVERSITY FREIBURG

### Erasmus Year 2011-12

UNIVERSITÉ PARIS-SORBONNE (PARIS IV)

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@ [mario-guenther.com](http://mario-guenther.com)

🗣️ English, German, French, Ancient Greek

## JOURNAL ARTICLES

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2025 “Factual Difference-Making” (with Holger Andreas)

*Australasian Philosophical Review* (forthcoming)

### Lead Article

2024 “Legal Proof Should Be Justified Belief of Guilt”  
*Legal Theory* (forthcoming)

“Actual Causation” (with Holger Andreas)

*dialectica* (forthcoming)

“Foundational Challenges in Assuring Alignment and Safety of Large Language Models” (with Usman Anwar et al.)

*Transactions on Machine Learning Research* (forthcoming)

“A Lewisian Regularity Theory” (with Holger Andreas)

*Philosophical Studies* 181: 2145-2176.

“A Regularity Theory of Causation” (with Holger Andreas)

*Pacific Philosophical Quarterly* 105(1): 2-32.

“Epistemic Sensitivity and Evidence”

*Inquiry* 67(6): 1348-1366.

2023 “Counterfactuals for Causal Responsibility in Legal Contexts” (with Holger Andreas and Matthias Armgardt)

*Artificial Intelligence and Law* 31(1): 115-132.

“Bayesians Still Don’t Learn from Conditionals” (with Borut Trpin)

*Acta Analytica* 38(3): 439-451.

2022 “Causal and Evidential Conditionals”

*Minds and Machines* 32(4): 613-626.

“Ramsey’s Conditionals” (with Caterina Sisti)

*Synthese* 200(165): 1-31.

“A Connexive Conditional”

*Logos and Episteme* 13(1): 55-63.

“Algorithmic and Human Decision Making: For a Double Standard of Transparency” (with Atoosa Kasirzadeh)

*AI & Society* 37(1): 375-381.

2021 “Difference-Making Causation” (with Holger Andreas)

*Journal of Philosophy* 118(12): 680-701.

“A Ramsey Test Analysis of Causation for Causal Models” (with Holger Andreas)

*British Journal for the Philosophy of Science* 72(2): 587-615.

2020 “Causation in Terms of Production” (with Holger Andreas)

*Philosophical Studies* 177(6): 1565-1591.

2019 “On the Ramsey Test Analysis of ‘Because’” (with Holger Andreas)

*Erkenntnis* 84(6): 1229-1262.

2018 “Learning Conditional Information by Jeffrey Imaging on Stalnaker Conditionals”

*Journal of Philosophical Logic* 47 (5): 851-876.

**Wolfgang Stegmüller Award 2022**

2017 “Learning Conditional and Causal Information by Jeffrey Imaging on Stalnaker Conditionals”

*Organon F*, 24(4): 456-486.

## ENCYCLOPEDIA ENTRIES

2021 “Regularity and Inferential Theories of Causation” (with Holger Andreas)

*The Stanford Encyclopedia of Philosophy*

## CONFERENCE PROCEEDINGS

2019 “Defining Selection Functions” (with Holger Andreas)

*The Logica Yearbook 2018*, 1-13.

2017 “Disjunctive Antecedents for Causal Models”

*Proceedings of the 21<sup>st</sup> Amsterdam Colloquium*, 25-34.

## OTHER PUBLICATIONS

2023 “Kann Europas KI Gesetz eine lebenswerte Zukunft bewahren?” (with William D’Alessandro)

*prae faktisch* (German)

2020 “Large-scale facial recognition is incompatible with a free society” (with Seth Lazar and Claire Benn)

*The Conversation*

“Was wird die Künstliche Intelligenz für Versicherungsunternehmen bedeuten?” (German)

*prae faktisch*

2018 “What’s Hot in Mathematical Philosophy?”

*The Reasoner*, 12 (11): 90-91.

2014 “Logical Symbolicism vs. Dynamicist Connectionism: Is there a Difference in Computational Power?”

*Incipiens*, 2(1): 5-28.

## AWARDS & GRANTS

24-25 LMUexcellent Grant 49,630€  
*Junior Research Fund*  
LMU MUNICH

23/24 Researcher in Residence ≈30,000€  
*Center for Advanced Studies*  
LMU MUNICH

2023 Grant for Teaching “Democracy & AI” 16,620€  
*Venice International University*  
LMU MUNICH

2022 Wolfgang Stegmüller Award 4,000€  
“Learning Conditional Information by Jeffrey Imaging on Stalnaker Conditionals”  
GERMAN SOCIETY FOR ANALYTIC PHILOSOPHY

“A Unifying Theory of Conditionals”  
*Walter Benjamin Grant* (declined)  
DEUTSCHE FORSCHUNGSGEMEINSCHAFT (DFG)

19-22 Postdoctoral Research Fellow  
*Grand Challenge Humanising Machine Intelligence*  
AUSTRALIAN NATIONAL UNIVERSITY

18-19 Postdoctoral Research Fellow  
DEUTSCHE FORSCHUNGSGEMEINSCHAFT (DFG)

15-19 Doctoral Fellowship Grant  
GRADUATE SCHOOL OF SYSTEMIC NEUROSCIENCE

2014 Top 10% of the master students of the Munich Center for Mathematical Philosophy (refund of study fees)

11-12 Grant for independent studies  
UNIVERSITÉ PARIS-SORBONNE (PARIS IV)

09/10 Top 5% in the Cognitive Science II exam  
ALBERT LUDWIG UNIVERSITY FREIBURG

2008 Top 10% in the Formal Logic I exam  
ALBERT LUDWIG UNIVERSITY FREIBURG

## TEACHING EXPERIENCE

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### Instructor at CARNEGIE MELLON UNIVERSITY

2024 “AI, Society, and Humanity”

### Instructor at LMU MUNICH

2024 “Legal Epistemology”

23/24 “Democracy & AI” (*Venice International University*)

2023 “Knowledge, Belief, and Degrees of Belief”

22/23 “Introduction to Decision Theory” (German)

“Introduction to Scientific Working” (German)

2022 “Introduction to Decision Theory” (German)

“Causation”

### Instructor at AUSTRALIAN NATIONAL UNIVERSITY

2021 “Philosophy, AI, and Society”  
with Pamela Robinson and Sarita Rosenstock

2020 “Conditionals” (Seminar for PhD students)  
with Alan Hájek

### Instructor at UNIVERSITY OF BAYREUTH

2020 “Fair Machine Learning”

2019 “Decisions, Fairness, and Machine Learning”

2018 “Decisions and Machines”

2017 “Philosophy of AI”

### Teaching Assistant

2020 “Logic & Critical Thinking”  
Colin Klein, ANU

2019 “The Moral and Political Philosophy of AI”  
Seth Lazar, ANU

2018 “Ethics of AI”  
Fiorella Battaglia & Atoosa Kasirzadeh, LMU

“Versions of Realism”  
Julian Nida-Rümelin, LMU

17/18 “Logic I” (German)  
Hannes Leitgeb, LMU

2017 “Epistemology and Ethics”  
Julian Nida-Rümelin, LMU

“Intro to Philosophy of Science” (German)  
Alexander Reutlinger, LMU

2016 “Intro to Philosophy of Science” (German)  
Alexander Reutlinger, LMU

“The Foundation of the Philosophy of Morals  
with Kant” (German)  
Fiorella Battaglia, LMU

15/16 “Human Liberty vs. Freedom of Will” (German)  
Fiorella Battaglia, LMU

2015 “Responsibility in the Sciences and Technology” (German)  
Fiorella Battaglia, LMU

“Philosophy of Mind”  
Stephan Sellmaier, LMU

14/15 “Life-form and Science” (German)  
Fiorella Battaglia, LMU

“Metaethics: Constructivism and Realism”  
Fiorella Battaglia, LMU (German)

2014 “Metaethical Foundation of Moral Reasoning”  
Fiorella Battaglia, LMU (German)

13/14 “Robotisation of Warfare. Risk, Ethics and  
Politics” (German)  
Fiorella Battaglia, LMU

10/11 “Cognitive Science II” (German)  
Gerhard Strube  
ALBERT LUDWIG UNIVERSITY FREIBURG

“Logic I” (German)  
Markus Junker  
ALBERT LUDWIG UNIVERSITY FREIBURG

## ORGANISATION OF EVENTS

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2024 Workshop “Theories of Legal Proof”  
CATHOLIC ACADEMY OF BAVARIA, MUNICH  
Main organizer of an international workshop  
supported by the Junior Research Fund of  
LMUexcellent.

2023 Seminar “Democracy & AI”  
VENICE INTERNATIONAL UNIVERSITY, SAN  
SERVOLO, ITALY  
Organizer

2022 Workshop “Responsibility & AI”  
UNIVERSITY OF VIENNA  
Co-organizer

2021 Seminar “Humanising Machine Intelligence” (led by Seth Lazar)  
AUSTRALIAN NATIONAL UNIVERSITY  
Convener

2020 Reading Group on “Conditionals” (with Frank Jackson, Alan Hájek, and Brian Hedden)  
AUSTRALIAN NATIONAL UNIVERSITY  
Organizer

2019 Workshop “Decision Theory & the Future of Artificial Intelligence”  
AUSTRALIAN NATIONAL UNIVERSITY  
Co-organizer

Workshop “Knowledge of Knowledge”  
UNIVERSITY OF REGENSBURG  
Co-organizer

2018 Seminar “The Ethics of Artificial Intelligence”  
VENICE INTERNATIONAL UNIVERSITY, SAN SERVOLO, ITALY  
Co-organizer

2018 Seminar “Versions of Realism”  
VENICE INTERNATIONAL UNIVERSITY, SAN SERVOLO, ITALY  
Co-organizer

2017 International Workshop “Democracy as a Form of Life”  
PARMENIDES FOUNDATION, GERMANY  
Co-organizer

ECAP9 Symposium on “Current Trends in Neurophilosophy”  
LMU MUNICH, GERMANY  
Organizer at the 9<sup>th</sup> European Congress of Analytic Philosophy

Conference “Causation, Explanation, Conditionals”  
EV. AKADEMIE, TUTZING (LAKE STARNBERG) AND LMU MUNICH, GERMANY  
Main organizer of an international conference supported by the Graduate School of Systemic Neuroscience, the Bernstein Center for Computational Neuroscience, and the Munich Center for Mathematical Philosophy

Seminar “Epistemology and Ethics”  
VENICE INTERNATIONAL UNIVERSITY, SAN SERVOLO, ITALY  
Co-organizer

2015 Conference “Predictive Brain”  
VENICE INTERNATIONAL UNIVERSITY, SAN SERVOLO, ITALY  
Co-Organizer

## SELECTED RECENT TALKS

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2023 “Legal Proof is Rational Belief of Guilt” (refereed)  
*Central APA 2023*  
DENVER

2022 “Probability of Guilt” (refereed)  
*GAP.II*  
HUMBOLDT UNIVERSITY OF BERLIN

“Legal Proof is Rational Belief of Guilt” (refereed)  
*96th Joint Session of the Aristotelian Society and the Mind Association*  
UNIVERSITY OF ST ANDREWS

“Actual Causation” (invited)  
*The LSE Choice Group*  
LONDON SCHOOL OF ECONOMICS & POLITICAL SCIENCE

## SERVICE

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2024 Referee for a Consolidator Grant Proposal of the European Research Council

Referee for Swiss National Science Foundation

“14th Tbilisi Symposium on Logic, Language and Computation (TbiLLC 2023)”  
Referee for post-proceedings

“Essay Award of the Society for Analytic Philosophy and *Grazer Philosophische Studien*”  
Jury member

2023 “ACM Conference on Fairness, Accountability, and Transparency”  
Chicago, USA  
Program committee member

2022 “ACM Conference on Fairness, Accountability, and Transparency”  
Seoul, South Korea  
Program committee member

2020 “Data, AI and Society Seminar Series”  
AUSTRALIAN NATIONAL UNIVERSITY  
Permanent Panelist for the public online seminar series

“Ethics of data science conference 2020”  
UNIVERSITY OF SYDNEY  
Program committee member

2019 “Conditional Logics and Conditional Reasoning:  
New Joint Perspectives”  
SCHLOSS DAGSTUHL, LEIBNIZ CENTER FOR  
INFORMATICS  
Collector for the [Dagstuhl report](#)

2017 “Causation, Explanation, Conditionals”  
GRADUATE SCHOOL OF SYSTEMIC NEUROSCIENCE,  
BERNSTEIN CENTER FOR COMPUTATIONAL  
NEUROSCIENCE, MUNICH CENTER FOR  
MATHEMATICAL PHILOSOPHY, LMU MUNICH  
Program chair

## JOURNAL REVIEWING

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*The Journal of Philosophy*, *Noûs*, *Mind*, *Australasian Journal of Philosophy* (2x), *Philosophical Quarterly*, *Canadian Journal of Philosophy*, *Journal of Philosophical Logic* (6x), *Review of Symbolic Logic*, *Philosophical Studies* (7x), *Analysis* (5x), *British Journal for the Philosophy of Science* (4x), *Mind & Language* (3x), *Erkenntnis* (2x), *Philosophy of Science* (2x), *Minds and Machines* (3x), *Synthese* (18x) *Theoria* (2x), *Artificial Intelligence* (2x), *AI and Ethics*, *Ergo* (2x), *Kriterion*, *Philosophia*, *Episteme*, *European Journal for Philosophy of Science*, *The Australasian Journal of Logic*.

## RESEARCH STAYS

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- 2022 “Academic Visitor”  
UNIVERSITY OF EDINBURGH
- 2021 “Academic Visitor”  
LONDON SCHOOL OF ECONOMICS & POLITICAL  
SCIENCE
- 2018 “International Rationality Summer Institute  
2018”  
LMU MUNICH, IRSEE
- 2017 Research Stay  
UNIVERSITY OF BRITISH COLUMBIA, KELOWNA
- 2016 “International Rationality Summer Institute  
2016”  
JUSTUS LIEBIG UNIVERSITY, AURICH
- 2015 “European Summer School of Logic, Language  
and Computation”  
UNIVERSITY POMPEU FABRA, BARCELONA
- 11-12 “Studies in Philosophy and Cognitive Science”  
UNIVERSITY PARIS-SORBONNE (PARIS IV), PARIS

## SUPERVISION

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- 2024 Postdoctoral Researcher Conrad Friedrich  
*Rational Belief and Guilt* funded by LMUexcellent  
LMU MUNICH
- 2023 “The Limits of Technocracy”  
MA Thesis of Victor Karl Magnússon  
LMU MUNICH
- “The Distance Minimization Approach to the  
Learning of Conditionals”  
MA Thesis of Zahra Moghimkhan  
LMU MUNICH
- “Climate Justice and Game Theory: An  
Investigation of the Significance of Cooperation  
and CO<sub>2</sub> Reductions in International Climate  
Negotiations”  
BA Thesis of Clara Goetz  
LMU MUNICH
- 2020 “Sleeping Beauty and Belief Updating”  
Independent Study with Honours Student Huon  
Porteous  
AUSTRALIAN NATIONAL UNIVERSITY
- 2019 “An Ethical Governor for Reinforcement  
Learning Agents”  
MA Thesis of Torben Swoboda  
UNIVERSITY OF BAYREUTH

## REFERENCES

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- PROF. DDR. HANNES LEITGEB  
Chair of Logic and Philosophy of Language  
*Co-Director of the Munich Center for Mathematical  
Philosophy*  
LMU MUNICH  
✉[Hannes.Leitgeb@lmu.de](mailto:Hannes.Leitgeb@lmu.de)
- PROF. DR. STEPHAN HARTMANN  
Chair of Philosophy of Science  
*Co-Director of the Munich Center for Mathematical  
Philosophy*  
LMU MUNICH  
✉[S.Hartmann@lmu.de](mailto:S.Hartmann@lmu.de)
- PROF. DR. ALAN HÁJEK  
Research Professor  
*School of Philosophy*  
AUSTRALIAN NATIONAL UNIVERSITY  
✉[Alan.Hajek@anu.edu.au](mailto:Alan.Hajek@anu.edu.au)

PROF. DR. CHRISTIAN LIST

Chair of Philosophy and Decision Theory  
*Co-Director of the Munich Center for Mathematical  
Philosophy*  
LMU MUNICH  
✉[C.List@lmu.de](mailto:C.List@lmu.de)

PROF. DR. IGOR DOUVEN  
Research Professor  
*Sciences, Normes, Décision*  
CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE  
UNIVERSITÉ PARIS IV – LA SORBONNE  
✉[Igor.Douven@sorbonne-universite.fr](mailto:Igor.Douven@sorbonne-universite.fr)

PROF. DR. KATIE STEELE  
Professor of Philosophy  
*School of Philosophy*  
AUSTRALIAN NATIONAL UNIVERSITY  
✉[Katie.Steele@anu.edu.au](mailto:Katie.Steele@anu.edu.au)

PROF. DR. GREGORY WHEELER  
Professor of Theoretical Philosophy & Computer  
Science  
*Director of the Centre for Human and Machine Intelligence*  
FRANKFURT SCHOOL OF FINANCE AND MANAGEMENT  
✉[G.Wheeler@fs.de](mailto:G.Wheeler@fs.de)

PROF. DR. OLIVIER ROY  
Chair of Philosophy I  
*Department Chair of Philosophy*  
UNIVERSITY OF BAYREUTH  
✉[Olivier.Roy@uni-bayreuth.de](mailto:Olivier.Roy@uni-bayreuth.de)

PROF. DR. DR. HC. JULIAN NIDA-RÜMELIN, FORMER  
MINISTER OF STATE  
Former Chair of Philosophy and Political Theory  
LMU MUNICH  
✉[Julian.Nida-Ruemelin@lrz.uni-muenchen.de](mailto:Julian.Nida-Ruemelin@lrz.uni-muenchen.de)