

Curriculum Vitae

Dr. Annika Schuster

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Current Affiliation

Since 10/2023

Post-doctoral Research Fellow

Research Project “Scientific Understanding and Deep Neural Networks”

University of Dortmund, Germany

Former Affiliations

09/2022 – 09/2025

Associated Member

Research Project: “Parameterized frames and conceptual spaces”

Heinrich-Heine-University Düsseldorf, Germany

01/2016 – 11/2019

Research Fellow

Research Project: “The structure of representations in language, cognition, and science”

Heinrich-Heine-University Düsseldorf, Germany

10/2012 – 12/2015

Student Assistant

Chair for Theoretical Philosophy

Heinrich-Heine-University Düsseldorf, Germany

Education

2016 – 2022

Doctoral Studies in Philosophy

Title of dissertation: Prototype Frames – A probabilistic account of typicality

Supervision: Prof. Gerhard Schurz, Prof. James Hampton

Heinrich-Heine-University Düsseldorf, Germany

2015 – 2016

Master of Arts (M.A.) Philosophy

Heinrich-Heine-University Düsseldorf, Germany

2012 – 2016

Biochemical Engineering

completed 89 credits towards a Bachelor of Science (B. Sc.)

University of Dortmund, Germany

2011 – 2015

Bachelor of Arts (B.A.) Philosophy

Minor: Linguistics

Heinrich-Heine-University Düsseldorf, Germany

Publications

- Boge, F., Schuster, A., Stoll, Frauke (2026): Disentangling scientific and scientists' understanding, *Synthese* 207 (243). [Link](#)
- Poth, N., & Schuster, A. (2026): Mental, scientific, and artificial representations. *Philosophy and the Mind Sciences*, 7(1). [Link](#)
- Schuster, A. (2026): Understanding Protein Folding with Machine Learning Models? The Case of AlphaFold 2, *Synthese*, 207 (66). [Link](#)
- Schuster, A., Boge, F. (2025): How can we trust opaque systems? Criteria for robust explanations in XAI, *Proceedings of IJCNN2025*. [Link](#)
- Schuster, A. (2022): Prototype Frames – A probabilistic account of typicality, dissertation. [Link](#)
- Strößner, C., Schuster, A., Schurz, G. (2021): Modification and Default Inheritance. In: Löbner, S., Gamerschlag, T., Kalenscher, T., Schrenk, M., Zeevat, H. (eds) *Concepts, Frames and Cascades in Semantics, Cognition and Ontology. Language, Cognition, and Mind*, vol 7. Springer, Cham.
- Schuster, A., Strößner, C., Sutton, P. & Zeevat, H. (2020): Stochastic frames. In: *Proceedings of the Probability and Meaning Conference (PaM 2020)*, ACL Anthology. [Link](#)
- Dapprich, J. P., Schuster, A. (2016): *Philosophy and Logic of Quantum Physics, Philosophical Foundations of the Sciences and their Applications*, vol 5, G. Schurz (ed.), Peter Lang, Frankfurt am Main

Research Grants

“Explainable Artificial Intelligence and AI Governance”
Principal investigator, Young Academy Dortmund, 8,853 €, 06/2026 – 03/2027.
Grant funds a six-month research assistant and project-related research expenses.

Conference Presentations

2026

Illusions of Objectivity in XAI

- Keynote at Workshop: Philosophy of Explainable AI: New Directions, Aarhus, Denmark (Invited).
- 5th Luxembourg Workshop on AI & Epistemology, Esch-sur-Alzette, Luxembourg.
- 51st Annual Philosophy of Science Conference, Dubrovnik, Croatia.

The paradox of explainability in artificial intelligence

8th International Conference in Philosophy and Economics, “Paradoxes and Contradictions”, Nancy, France.

Can AI generate scientific representations of proteins? A DEKI-analysis of AlphaFold2 (with Giovanni Galli)

8th SURE Workshop (Scientific Understanding and Representation), Warsaw, Poland.

2025

Representation: Mental, scientific – and artificial? (with Nina Poth)

6th conference on “Philosophy of Artificial Intelligence” (PhAI 2025), Amsterdam, Netherlands.

Mental, Scientific, and Artificial Representations? (with Nina Poth)
German Analytic Philosophy (GAP) conference, Düsseldorf, Germany.

How can we trust opaque systems? Criteria for robust explanations in XAI (with Florian Boge)
IACAP conference, Enschede, Netherlands.

SHAPley values – subjective objectivity in XAI
Philosophy of Machine Learning Workshop, Tübingen, Germany.

A New Pathway to Scientific Understanding

- Lamarr Lab Visits, Interdisciplinary Area “AI in the Life Sciences,” Dortmund, Germany.
- GWP conference, Erlangen, Germany.

2024

From Objectual to Explanatory Understanding with AlphaFold2,

- AI and the Future of Science Conference, Hong Kong.
- IACAP Conference, Oregon, USA.
- Philosophy of Science and Epistemology Conference, Hong Kong.

Understanding without Understanding (with Frauke Stoll)
Philosophy of Machine Learning Conference, Tübingen, Germany.

Pathways towards Scientific Understanding with Deep Neural Networks (with Frauke Stoll)
Philosophy of Science Conference, Dubrovnik, Croatia.

Understanding Deep Learning Geometrically – Conceptual Spaces in Deep Neural Networks

- Rationality and Cognition Workshop, RUB, Bochum, Germany.
- 6th SURE Workshop, LSE, London, UK.

2023

Probabilistic Prototypes and Default Inheritance (with Corina Ströbner)
Prolog 2023, Utrecht, Netherlands.

2022

Typicality and Probability

- Concepts and Reasoning Workshop, Ruhr Universität Bochum, Germany.
- Paris-Berkeley Workshop on Probability and Meaning, Institut Jean-Nicod, Paris, France.

2018

Mentalized Frames (with Leda Berio)
Roots of Pragmasemantics Workshop, Szklarska Poręba, Poland.

Stochastic frames (with Corina Ströbner, Peter Sutton, Henk Zeevat)
Uncertainty in Meaning and Representation in Linguistics and Philosophy Workshop, Jelenia Góra, Poland.

2017

Prototype frames (with Corina Ströbner)
Probabilistic Approaches to (Prototype) Concepts Workshop, SOPHiA 2017, Salzburg, Austria.

Event Organization

2026

Workshop: AI & Understanding: Between Science, Logic, and Cognition, co-organized with Florian Boge and Frauke Stoll, Dortmund, Germany.

2025

Satellite Workshop: Similarity after Carnap, co-organized with Corina Strößner, Nina Poth, Matías Osta Velez, GAP.12, Düsseldorf, Germany.

Workshop: Machine Learning Meets Scientific Understanding, co-organized with Florian Boge and Frauke Stoll, Dortmund, Germany.

2024

Lecture Series: Philosophy of Science and Machine Learning, co-organized with Florian Boge and Frauke Stoll, Dortmund, Germany.

Workshop: Epistemological Issues of Machine Learning in Science, co-organized with Florian Boge and Frauke Stoll, Dortmund, Germany.

2017

Probabilistic Approaches to (Prototype) Concepts Workshop, co-organized with Corina Strößner, SOPHiA 2017, Salzburg, Austria.

Teaching

2026/2027

Social and Feminist Epistemology (English)
Foundation seminar, University of Dortmund, Germany.

2026

Reality and Modality: Fundamental questions of metaphysics (German)
Foundation seminar, University of Dortmund, Germany.

2025/2026

The concept of science in the course of time (German)
Foundation seminar, University of Dortmund, Germany.

2025

Explanation and understanding in science (German)
Foundation seminar, University of Dortmund, Germany

2024/2025

Theories of concepts (German)
Foundation seminar, University of Dortmund, Germany.

2024

The concept of understanding in science (English)
Advanced / Master's seminar, University of Dortmund, Germany.

2017/2018

Logic 1 exercise (German)
Seminar accompanying the lecture, Heinrich-Heine-University Düsseldorf, Germany

2017

Theories of concepts in philosophy of language and mind (English)

Advanced / Master's seminar, co-taught with Leda Berio, Heinrich-Heine-University
Düsseldorf, Germany

2012-2014

Tutorials accompanying the lectures on philosophy of science and epistemology, Heinrich-
Heine-University Düsseldorf, Germany

Languages

German	native speaker
English	excellent
French	advanced