Krishna Balajirao Manoorkar

Curriculum Vitae

School of Business and Economics
Vrije Universiteit Amsterdam
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Date of birth: 25 September 1997

Education

2021-   **PhD**, *Vrije Universiteit Amsterdam*, Amsterdam, the Netherlands, Promotors: A. Palmigiano and N.M. Wijnberg
Expected defense: 2025

2019-2021   **MSc in Mathematics**, *Technion University*, Haifa, Israel
Masters Thesis: *Littlestone dimension and privacy*, Supervisor: Amir Yehudayoff

2015–2019   **B.Sc. Mathematics and Computing**, *Indian Institute of Technology*, Kanpur, India, *CPI: 9.4/10*

Research Interests

- **Modal logic, Knowledge representation and reasoning, Explainable AI, Reasoning under uncertainty, Non-classical logics, Logics for social interaction**

Publications

Publications in international journals

- **Polynomial-time checking of generalized Sahlqvist syntactic shape**, with Alessandra Palmigiano, and Mattia Panettiere, *Theoretical Computer Science*, doi.org/10.1016/j.tcs.2024.114875, (2024).

- **Outlier detection using flexible categorisation and interrogative agendas**, with Marcel Boersma, Alessandra Palmigiano, Mattia Panettiere, Apostolos Tzimoulis, and Nachoem Wijnberg, *Decision Support Systems, doi.org/10.1016/j.dss.2024.114196, (2024).*

- **Modal reduction principles: a parametric shift to graphs**, with Willem Conradie, Alessandra Palmigiano, and Mattia Panettiere, *Journal of Applied Non-Classical Logics, doi.org/10.1080/11663081.2024.2336377, (2024).*

- **Modal reduction principles across relational semantics**, with Willem Conradie, Andrea De Domenico, Alessandra Palmigiano, Mattia Panettiere, and Daira Pinto Prieto, *Fuzzy Sets and Systems, doi.org/10.1016/j.fss.2024.108892, (2023).*

- **Rough concepts**, with Willem Conradie, Sabine Frittella, Sajad Nazari, Alessandra Palmigiano, Apostolos Tzimoulis, and Nachoem M Wijnberg, *Information Sciences, doi.org/10.1016/j.ins.2020.05.074, (2021).*

- **Toward a Dempster-Shafer theory of concepts**, with Sabine Frittella, Krishna Manoorkar, Alessandra Palmigiano, Apostolos Tzimoulis, and Nachoem Wijnberg, *International Journal of Approximate Reasoning doi: 10.1016/j.ijar.2020.05.004, (2020)*.

Papers accepted or published in refereed conferences

- **Defeasible reasoning on concepts**, with Yiwen Ding, Ni Wayan Switrayni, and Ruoding Wang, *Asian Workshop on Philosophical Logic (AWPL) 2024*, accepted.
- **Monotone Modal Logic beyond Distributivity**, with Yiwen Ding, Alessandra Palmigiano, and Ruoding Wang, *Indian Conference on Logic and Applications (ICLA) 2024*, accepted.
- **KLM-style Defeasible Reasoning on Concepts**, with Alessandra Palmigiano, and Apostolos Tzimoulis *What can FCA do for Artificial Intelligence?, 2024*, in press.
- **Toward the van Benthem Characterization theorem for non-distributive modal logic**, with Yiwen Ding, Mattia Panettiere, and Ruoding Wang, *Advances in Modal Logic, 2024*, in press.
- **Description logic for rough concepts**, with Andrea De Domenico, and Alessandra Palmigiano, *International Joint Conference on Rough Sets, 2024*, LNAI volume 14839 (2024), 67-89.
- **Non-distributive description logic**, with Ineke van der Berg, Andrea De Domenico, Giuseppe Greco, Alessandra Palmigiano, and Mattia Panettiere, *Proc. TABLEAUX 2023*, Springer LNAI 14278 (2023), 49-69.
- **Causal Kripke models**, with Yiwen Ding, Apostolos Tzimoulis, Ruoding Wang, and Xiaolong Wang, *Proc. TARK 2023*, EPTCS 379 (2023), 185-201.
- **Labelled calculi for lattice-based modal logics**, with Ineke van der Berg, Andrea De Domenico, Giuseppe Greco, Alessandra Palmigiano, and Mattia Panettiere, *Proc. ICLA 2023*, Springer LNCS 13963 (2023), 23-47.
- **Labelled calculi for the logics of rough concepts**, with Ineke van der Berg, Andrea De Domenico, Giuseppe Greco, Alessandra Palmigiano, and Mattia Panettiere, *Proc. ICLA 2023*, Springer LNCS 13963 (2023), 172-188.
- **Describing and quantifying contradiction between pieces of evidence via Belnap Dunn logic and Dempster-Shafer theory**, with Marta Bilkova, Sabine Frittella, Daniil Kozhemiachenko, and Ondrej Majer, *Proc. ISIPTA 2023*, PMLR 215:37-47, 2023.
- **Subordination algebras as semantic environment of input/output logic**, with Andrea De Domenico, Ali Farjami, Alessandra Palmigiano, Mattia Panettiere, and Xiaolong Wang, *Proc. WoLLIC 2022*, Springer LNCS 13468 (2022), 326-343.

- **Logics for rough concept analysis**, with Giuseppe Greco, Peter Jipsen, Alessandra Palmigiano, and Apostolos Tzimoulis, *Proc. ICLA 2019*, Springer LNCS 11600 (2019), 144-159.
- **Proper display calculi for rough algebras**, with Giuseppe Greco, Fei Liang, and Alessandra Palmigiano, *Proc. LSFA 2018*, ENTCS 344 (2018), 101-118.

Papers submitted to international journals

- **Obligations and permissions, algebraically**, with Andrea De Domenico, Ali Farjami, Alessandra Palmigiano, Mattia Panettiere, and Xiaolong Wang, https://arxiv.org/abs/2403.03148
- **Obligations and permissions on selfextensional logics**, with Andrea De Domenico, Ali Farjami, Alessandra Palmigiano, Mattia Panettiere, and Xiaolong Wang, https://arxiv.org/pdf/2402.07336.
- **Flexible categorization using formal concept analysis and Dempster-Shafer theory**, with Marcel Boersma, Alessandra Palmigiano, Mattia Panettiere, Apostolos Tzimoulis, and Nachoem Wijnberg, https://arxiv.org/abs/2210.17330.

Papers submitted to refereed conferences

- **Fuzzy lattice-based description logic**, with Yiwen Ding.
- **Query answering in lattice-based description logic**, with Ruoding Wang.

Talks at workshops and conferences

Contributed Talks

26/06/2024	**Non-distributive description logic**, *TACL 2024, Barcelona*, Spain
19/05/2024	**Description logic for rough concepts**, *IJCRS 2024, Halifax*, Canada
22/04/2024	**Non-distributive description logic**, *ABRI PhD Day, VU Amsterdam 2024, Amsterdam*, the Netherlands
27/09/2023	**Causal Kripke models**, *MOSAIC 2023, Vienna*, Austria
20/09/2023	**Non-distributive description logic**, *TABLEAUX 2023, Prague*, Czechia
04/03/2023	**Labelled calculi for the logics of rough concepts**, *ICLA 2023, Indore*, India
29/06/2023	**Causal Kripke models**, *TARK 2023, Oxford*, UK
22/09/2022	**Subordination algebras as semantic environment of input/output logic**, *WoLLIC 2022, Iasi*, Romania
22/06/2022	**Interrogative agendas, categorization,and decision-making**, *TACL 2022, Coimbra*, Portugal
20/06/2022	**Probability via logic: semantic analysis and proof theory**, *TACL 2022, Coimbra*, Portugal

04/03/2019 **Logics for rough concept analysis**, *ICLA 2019, Delhi*, India

Other talks at seminars/workshops

05/10/2023 **Multi-Type logics for interrogative agendas**, *CELIA 2023, Prague*, Czechia

03/10/2023 **Explainable AI and categorization**, *EGS Research Seminar, VU Amsterdam*, the Netherlands

03/07/2018 **Multi-type rough algebras**, *Algebraic Proof Theory for Social Behaviour workshop, TU Delft*, the Netherlands

Academic visits

May 2024 **Faculty of Mathematics**, *Chapman University*, California, USA

June 2023 **Faculty of Mathematics**, *Chapman University*, California, USA

January 2023 **School of Mathematics**, *University of the Witswatersrand*, South Africa

January 2022 **School of Mathematics**, *University of the Witswatersrand*, South Africa

January 2019 **Department of pure and applied mathematics**, *University of Johannesburg*, South Africa

Summer 2018 **Faculty of Technology, Policy and Management (TPM) - Department of Values, Technology and Innovation**, *TU Delft*, the Netherlands

Teaching and supervision

Spring 2021-4 **Ethics, IBA and BK, EOR, EBE**, *Vrije Universiteit Amsterdam*

Summer 2022-4 **Guest lecture at 'Using logic as a tool for modelling'**, *Vrije Universiteit Amsterdam summer school*

2022-3 **BSc thesis supervision**, *Vrije Universiteit Amsterdam*, 2 students successful

Sep 2020 **Mentor, Maths Research Week, Technion**, *Technion University, Haifa, Israel*

Professionalization

○ I am working on obtaining my Dutch University Teaching Qualification (BKO). I have completed 2 out of the 3 modules required for the qualification. I plan to complete the remaining module in 2025.

Scholarships

2021-2023 **Technion Graduate Scholarship and fee waiver**, *From Technion University, Haifa, Israel*

Reviewing

Journals: Transactions on Computational Logic, Information Sciences, Ethics and Information Technology, International Journal of Approximate Reasoning, Transactions on Fuzzy Systems, Notre Dame Journal of Formal Logic

Conferences: AiML 2024, TABLEAUX 2023, FedCSIS 2023, MOSAIC 2023, ICLA 2023, AiML 2022, FedCSIS 2022, Logica 2022