

UNIVERSITY OF MILAN

Public selection for recruiting No._1_ research fellow(s) under art.24, paragraph 3.b, of Law No.240/2010 for competition sector 11 / C2 - LOGIC, HISTORY AND PHILOSOPHY OF SCIENCE, (scientific-disciplinary sector M-FIL / 02 - LOGIC AND PHILOSOPHY OF SCIENCE) at the Department of Philosophy, (announcement published on Official Gazette No. _____ of _____) - Competition code 4621

Soroush Rafiee Rad

CURRICULUM VITAE

PERSONAL DATA (DO NOT WRITE YOUR PERSONAL ADDRESS AND LANDLINE OR MOBILE PHONE NUMBER)

Surname	Rafiee Rad
Name	Soroush
Date of Birth	22/ 07/ 1981

Dutch Institute for Emergent Phenomena (DIEP) and
Institute for Logic, Language and Computation (ILLC)
University of Amsterdam

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Tel: +491744765193

Research Interests

Areas of Specialization

Social Epistemology, Logics for Information Dynamics, Social Choice Theory, Probabilistic Reasoning

Areas of Competence

Formal Political Theory, Artificial Intelligence, Quantum Information Theory, Probability Theory

Education

Ph.D. in Philosophy

Tilburg Center for Logic and Philosophy of Science (TiLPS) 2014

Thesis: Four Essays on Mathematical Philosophy

Thesis Promoter: Prof. Stephan Hartmann

Thesis committee: Prof. Stephan Hartmann, Prof. Luc Bovens, Prof. Igor Douven, Prof. Rohit Parikh, Prof. Sonja Smets, Prof. Jan Sprenger

Ph.D. in Mathematical Logic

University of Manchester 2009

Thesis: Inference Processes for Probabilistic First Order Languages

Supervisor: Prof. Jeff Paris

Marie Curie Fellowship

B.Sc. in Pure Mathematics

Sharif University of Technology 2004

Appointments

Research fellow, Dutch Institute for Emergent Phenomena and ILLC, Dec 2020-
 Replacement for Chair of Logic, Bayreuth University, Oct 2019- Jan 2020
 Postdoctoral Researcher, Bayreuth University, Sep 2017-Nov 2020
 Research Fellow, Munich Center for Mathematical Philosophy, Feb 2017- Sep 2017
 Postdoctoral Researcher, Institute for Logic, Language and Computation, Sep 2014-Feb 2017
 Research Fellow, Munich Center for Mathematical Philosophy, Nov 2013-Sep 2014
 Research Associate, Tilburg Center for Logic and Philosophy of Science, 2010-2013
 Visiting Researcher, Graduate Center, CUNY, May 2013-July 2013
 Visiting Researcher, Center for Reasoning, University of Kent, Nov 2012-Feb 2013
 Visiting Researcher, CPNSS, LSE, Sep-Nov 2012
 Visiting Researcher, Universite Claude Bernard, May 2008-July 2008

Publications

1. Probabilities with Gaps and Gluts (with D. Klein and O. Mayer), *J. of Philosophical Logic*, 2021, Online first.
2. Tracking Probabilistic Truths: a logic for statistical knowledge (with A. Baltag and S. Smets), *Synthese*, 2021, to appear
3. Deliberation, Single-Peakedness, and Coherent Aggregation (with O. Roy), *American Political Science Review*, 115(2): 629-648, 2021.
4. Towards Limit Entropy Conjecture (with J. Landes and J. Williamson), *Anal. of Pure and Applied Logic*, 172(2), 2021.
5. Probabilistic Characterization of Models of First Order Theories, *Anal. of Pure and Applied Logic*, 172(1), 2021.
6. Learning From Conditionals (with S. Hartmann & B. Eva), *Mind*, 129(514): 461--508, 2020.
7. Anchoring in Deliberation (with S. Hartmann), *Erkenntnis*, 85:1041--1069, 2020.
8. Learning Probabilities: Logic of Statistical Learning (with A. Baltag and S. Smets), *proceedings of TARK XVII, EPTCS*, 297: 35--49, 2019.
9. A Complete Axiomatisation for the Logic of Lattice Effect Algebras (with A. Sharafi and S. Smets), *Int. J. Theoretical Physics*, online first, 2019.
10. Maximum Entropy Models of Σ_1 Sentences, *Journal of Applied Logic*, 5(1): 287--300, 2018.
11. Voting, Deliberation and Truth (with S. Hartmann), *Synthese*, 195:1273--1293, 2018.
12. Categorical Equivalence Between Orthomodular Algebras and Orthomodular Lattices (with J. Sacks, K. Kishida and S. Zhong), *Int. J. Theoretical Physics*, 56(12):3991-4003, 2017.
13. Logical Analysis of Quantum Voting Protocols (with S. Smets and E. Shirkalam), *Int. J. Theoretical Physics*, 56(12): 4060--4072, 2017.
14. Equivocation Axiom for First Order Languages, *Studia Logica*, 105(21), 2017.
15. A Note On The Least Informative Model of A Theory (with J. Paris), in *Programs, Proofs, Processes, CiE*, Eds. F. Ferreira, B. Löwe, E. Mayordomo, & L. Mendes Gomes, Springer LNCS 6158, pp. 342-351, 2010.
16. Inference Processes for Quantified Predicate Knowledge (with J. Paris), in *Logic, Language, Information and Computation, WoLLIC, Edinburgh*, Eds. W. Hodges and R. de Queiroz, Springer LNAI, 5110, pp. 249-25, 2009.

Work Under Review (drafts available)

1. Probabilistic Entailment on First Order Languages, *Review of Symbolic Logic*, minor revisions submitted
2. Emergence of Path-Dependence in Deliberation Over Preferences (with Olivier Roy)

Invited Talks

1. From Qualitative Probabilities to Full Belief, SEGA workshop, Bayreuth, Jun 2019
2. Learning Probabilities, Many Faces of Logic: a Workshop in Honor of Johan van Benthem, Aachen, Nov 2018
3. Learning Probabilities: The Logic of Statistical Learning, Trends in Logic, Milan, Oct 2018 (Keynote speaker)
4. From Qualitative Probabilities to Full Belief, Prague, Oct 2018
5. Logics for Rational Deliberation, Tsinghua University, Beijing, May 2018
6. Anchoring in Deliberation, SEGA workshop, Paris Oct 2017
7. Learning Probabilities, Indian Mathematics Consortium, Varanasi, Dec 2016
8. A Doxastic Dynamic Logic for Learning Probabilities, LogiCIC Workshop, Amsterdam, Nov 2016
9. Equivalence Between Hilbert Lattices and Quantum Dynamic Algebras, Tbilisi, Jun 2016
10. Logics of Probabilistic Updates, Workshop on Reasoning in Social Context, Nov 2015
11. Forming Rational Belief on Quantified Evidence, Tsinghua University, Oct 2015
12. Maximum Entropy Models and Rational Belief Formation, Rutgers University, Sep 2015
13. Voting, Deliberation and Truth, LogiCIC workshop, Nov 2014
14. Learning Conditional Information, Graduate Center, CUNY, Jul 2013
15. Reasoning From Inconsistent Information, University of Manchester, Nov 2012
16. Inference Processes for First Order Probabilistic Languages, King College, Nov 2012
17. Reasoning From Inconsistencies, Choice Group Seminars, LSE, Oct 2012
18. Learning Causal Conditionals, MCMP Seminars, Venice Nov 2011
19. Anchoring in Deliberation, Copenhagen-Lund Workshop in Social Epistemology, Copenhagen, Sep 2011
20. Maximum Entropy and Principles of Rationality, Universite Claude Bernard, Jun 2008

Professional Activities

Journal/Conference Reviewing

I have reviewed papers for *Studia Logica*, *Synthese*, *Erkenntnis*, *Review of Symbolic Logic*, *Journal of Philosophical Logic*, *Journal of Symbolic Logic*, *Journal of Applied Logic*, *Journal of Logic and Computation*, the *Logic Journal of IGPL* and *Fundamenta Mathematica*, as well as international workshops including IJCAI, LORI, TARK and WOLLIC. I have also been part of the program committee for several conferences including LORI 2017, LogiCIC 2015, 2016, Lori 2019 and will be part of the program committee of LORI 2021.

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Conference/Workshop Organization

I have been involved in the organization of the following conferences, workshops and seminars:

1. Bayreuth-LSE student Conference 2019
2. Congress of the German Association for Mathematical Logic and Foundations of Science, Bayreuth University, 2018
3. Main coordinator of weekly LIRa seminars at ILLC, Sep 2014- Feb 2017.
4. Workshop on Logical Structure of Correlated Information Change, ILLC, Nov. 2016
5. Workshop on Reasoning in Social Context, ILLC, Nov. 2015
6. Workshop on Logical Structure of Correlated Information Change, ILLC, Nov. 2014
7. Synthese Conference on Qualitative and Quantitative Methods in Formal Epistemology, ILLC, Nov. 2014
8. Munich-Tilburg-Sydney conference, Tilburg University 2012
9. Mathlogapp workshop, University of Manchester, 2009

Teaching and Supervision

Graduate Supervision

1. Laura Bizhou van Pol, MSc Thesis (co-supervised with Sonja Smets)
Topic: Quantum Theory and Logic of Questions,
ILLC, Defended July 2017.
2. Christian Tueschel, MSc Thesis (co-supervised with Sonja Smets),
Topic: Adoption of IPV6 on Internet Routing Network,
ILLC, Defended October 2017
3. Ko Hung Kuan, MSc Thesis (co-supervised with Sonja Smets)
Title: Coherence Preservation: A Threat to Probabilistic Measures of Coherence
ILLC, Defended August 2015
4. Amirhossein Sharafi (co-supervised with Sonja Smets)
Topic: Effect Algebras and Quantum Logic
Visiting PhD Student, ILLC, Jan 2017- May 2017
5. Elaheh Shirinkalam, (co-supervised with Sonja Smets)
Topic: Verification of Quantum Voting Protocols
Visiting PhD Student, ILLC, Sep 2015- March 2016
6. Andres Occhipinti Liberman, Master of Logic Individual Project
Topic: Principles of Uncertain Reasoning,
ILLC, June-November 2016
7. Melina Mendoza, Master of Logic individual Project,
Topic: Interpretations of Quantum Mechanics
ILLC, March-August 2016
8. Anna Franchini, Master of Logic Individual Project
Topic: Introduction to Category Theory
ILLC, January- July 2016

Undergraduate Supervision

1. Koen Leijnse, BSc Thesis (co-supervised with Dora Achourioti)
Topic: Conditional Statements in Quantum Logic
Amsterdam University College, May 2018.
2. Nicolò Maresca di Serracapriola, BSc Thesis (co-supervised with Dora Achourioti)
Topic: Reassessing the Empirical Status of Logic
Amsterdam University College, May 2018.

Thesis Committee

1. Illiana Gioulatou, MSc Thesis: Yablo's Absoluteness, Fine Truthmaking Semantics and Hyperintentionality, ILLC 2016
2. Benjamin Sparkes, MSc Thesis: Completeness Results for an Inquisitive Doxastic Logic, ILLC 2016
3. Roosmarijn Goldbach, MSc Thesis: Modeling Democratic Deliberation, ILLC 2015

Teaching

1. Emergence in Social Contexts (part of course on Emergence), UvA 2021
2. Logic and Argumentation Theory, Bayreuth 2019
3. Philosophy of Probability, Bayreuth 2019 (MSc level)
4. Decision Making and Collective Rationality, Bayreuth 2019
5. Logic and theory of Argumentation, Bayreuth 2018 (with Olivier Roy)
6. Epistemic Logic, Bayreuth 2018 (with Marcel Kiel)
7. Decision Theory and Collective Rationality, Bayreuth 2018
8. Probabilistic Reasoning, ILLC 2016 (MSc level)
9. Quantum Logic, ILLC 2016 (MSc level)
10. Uncertain Reasoning, ILLC 2015 (MSc level)
11. Introduction to Political Philosophy, MCMP, Munich 2014
12. Rationality, Tilburg University, 2010, 2011 (with Stephan Hartmann)
13. Philosophy of Science, Tilburg University, 2011 (with Stephan Hartmann)
14. Experts in Complex Society, Tilburg University, 2010 (with Stephan Hartmann)
15. Teaching Assistant, Discrete Mathematics, University of Manchester 2006-2007
16. Teaching computer-programming languages, Computing Centre, Sharif University of Technology 2002-2005 (C, C++, JAVA, PHP, SQL)

References

Professor Sonja Smets

Institute for Logic, Language and Computation
University of Amsterdam
S.j.L.Smet@uva.nl

Professor Olivier Roy

Department of Philosophy
Bayreuth University
Olivier.Roy@uni-bayreuth.de

Professor Jon Williamson

Department of Philosophy
University of Kent at Canterbury
J.Williamson@Kent.ac.uk

Dr Alexandru Baltag

Institute for Logic, Language and Computation
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University of Amsterdam
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The Netherlands

Department of Philosophy
Università degli Studi di Milano
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20122 Milano
Italy

Dear Members of the Committee,

I am writing to apply for the Assistant Professor position in Philosophy of Science.

My research lies at the intersection of logic, social epistemology, and philosophy of science. Trained as a mathematician and philosopher, I have mainly focused on the development of probabilistic and formal methods for modelling information dynamics and reasoning under uncertainty, and their application to problems in social epistemology and philosophy of economics. I am especially interested in the collective attitude formation and the phenomena that emerge at the macro level in groups and complex systems due to information exchange at the micro-level and between agents or components of the system. My research involves applying probabilistic and mathematical methods as well as computational tools and computer simulations and enforces the connections between logic and a number of other areas of research in the sciences and humanities.

My background combines strong expertise in formal methods, and in particular, in mathematical analysis of information dynamics with experience in formal philosophy. I am well-versed in several areas of logic, and I have experience with a wide range of formal methods. My toolbox includes not only analytical, probabilistic, and logical methods but also computer simulations and computational analysis, which I have used widely in my research. For my Ph.D. in mathematics, I worked on inductive logic and probabilistic learning. On the one hand, my work is concerned with studying the mathematical structure of uncertain inference processes, and on the other hand, with the application of these processes to study dynamics of information and inductive learning. I have also extensively studied the application of both classical and non-classical probabilities for drawing inferences from uncertain, incomplete, and inconsistent information. My second Ph.D. in Philosophy directs this expertise in a more philosophical direction and towards the investigation of complex systems and networks of communicating agents. My research in this area primarily focuses on the philosophy of social sciences and, in particular, the philosophy of economics. I am especially interested in modelling communication, information exchange, and attitude formation in collective settings, and my work ties closely to the research in computational social choice theory. In this direction, I have worked on models of deliberation and preference aggregation and studied phenomena associated with the information exchange in groups. Such phenomena include the emergence of truth tracking, path-dependence, single-peakedness, polarisation, information cascades, etc., which are of central importance in the philosophy of economics and political science. More recently, my work has also involved quantum logic and quantum information theory. Along these lines, I have studied, on the one hand, the connection between different mathematical formalizations in quantum theory and, on the other hand, the application of concepts from quantum theory to collective decision making, for example, quantum voting protocols, which connects back to the problems of interest in social epistemology, philosophy economics, and political philosophy.

I have also investigated the application of my research to problems in industry and, in particular, the Internet industry. Together with Professor Smets at the Institute for Logic, Language, and Computation at University of Amsterdam, I am investigating a proposal for modelling and analysing the Internet routing network using probabilistic and logical approaches. The goal of this study is to examine microscopic conditions on the behaviour of the autonomous agents on the network, such as their strategies for communication, activating or deactivating connections, and their updating strategies, as well as conditions on the topology of the global network that can guarantee certain macroscopic properties, such as stability and security, and help the prevention of abuse and malicious activities on the network. This proposal is being developed in close contact with some of the largest players in this industry. I attach a letter of support for our proposal from RIPE NCC, the European secretariat to the Internet community and one of the largest facilitators in Internet governance. In addition, I am involved in an EU grant proposal for a doctoral training network involving several universities and industry partners, which focuses on assessing information reliability and the spread of (mis)information in networks. I am also in contact with researchers on cybersecurity at organisations such as ICANN and have started to investigate the application

of logical and probabilistic tools to detect abusive, illegal, or malicious activities on the World Wide Web.

Alongside my research, I have served as a lecturer in several universities and research centres at both undergraduate and graduate levels, and I have experience with the utilisation of digital and audio-visual teaching tools. I am competent to teach a diverse range of courses, from introductory courses in logic, philosophy of science, and epistemology to advance classes in information dynamics, AI, social epistemology, probabilistic and statistical inference, social choice theory, and collective decision-making, amongst others. Moreover, I have extensive experience teaching computer programming languages and their application in computational analysis and agent-based modelling. I have broad teaching experience and look forward to taking part in the design and planning of undergraduate and graduate courses and further extending my teaching competence beyond my areas of research expertise. I attach a teaching assessment from Prof. Roy, the chair of logic and the head of the philosophy department at Bayreuth University, where I previously worked.

I am also experienced with both graduate and undergraduate supervision. Between 2016 and 2019, I have co-supervised three MSc and two BSc theses at the University of Amsterdam, in addition to the co-supervision of several visiting Ph.D. students. I am currently involved in graduate supervision for MSc theses at the Institute for Logic, Language and Computation (ILLC) of the University of Amsterdam. My supervision activities also connect to my industry outreach and connections. One of the MSc thesis that I have supervised at the ILLC focused on economic and governance aspects of adopting new routing strategies on the Internet and involved a graduate student employed and supported by the RIPE NCC. This project was developed in close connection with our industry partner. I have also been involved in the organization of several conferences and workshops at the University of Manchester, Tilburg University, University of Amsterdam, Ludwig Maximilian University of Munich, and Bayreuth University. I am eager to contribute to the organizational and administrative activities at the departments in any way necessary.

I believe that my research background and teaching expertise fit very well with the requirements of this position and the research profile of the Department of Philosophy at University of Milan. My work in social epistemology, social choice theory, and philosophy of economics connect very well with the focus of this position and the research interests of several members of the department. I also have a strong background in several areas in logic and, in particular, probabilistic reasoning and inductive logic that connects seamlessly to the research interests in the logic group at the department. What is more, my research enforces the connection between logic and probabilistic modelling, and problems of interest in social choice theory, philosophy of economics, and political philosophy. Therefore, I am confident that I can make significant contributions to both teaching and research in this position and strengthen the collaborations in the department. My research is interdisciplinary in nature and brings together different lines of enquiry and disciplines. In the course of my research career, I have developed an extensive international network in academia and, more recently, in the industry. Besides several departments that I have studied or worked at, I have been a visiting fellow at the London School of Economics, the Graduate Center of the City University of New York, and the University of Kent at Canterbury. I also have strong research connections to Tsinghua University, Northeastern University, and the Czech Academy of Science. I am confident that I can positively contribute to creating international collaborations and forging stronger alliances with both academic and industry-based research organizations.

At the same time, this position at the University of Milan can provide the perfect platform that would allow me to strengthen and pursue my goals as a teacher and a researcher. Joining the Department of Philosophy at the University of Milan will allow me to work with internationally renowned scientists and researchers and be part of a vibrant academic environment. This will be an invaluable opportunity for me and a defining point for my academic career. I am also eager to positively contribute to the liveliness of teaching and research activities at the department and the university by bringing in my research expertise, teaching and supervision experience, and academic and industry connections.

I thank you in advance for considering my application and look forward to hearing back from you.

Faithfully yours,

Soroush Rafiee Rad



RIPE NCC
RIPE NETWORK COORDINATION CENTRE

To whom it may concern,

We are writing to express our support for the attached proposal on modeling and analyzing the BGP network.

RIPE NCC has a stake in the reliable operation of the Internet and we think that the outcome of the proposal will be an innovative contribution to the core Internet infrastructure.

BGP is the communication protocol that essentially takes care of the correct transmission of data from sources to destinations within the Internet, and as such is one of the main pillars on which the Internet is built. Unfortunately, however, the current understanding of the operation of the BGP network and, in particular, its dynamics lack a rigorous formal foundation and available analyses are strongly ad-hoc and case based. In this sense, a strong formal analysis that can shed light on the dynamics of Internet routing, and a reliable analysis tool that can be employed by the industry stakeholders is of great relevance.

It can prove highly useful for governing bodies, such as local regulators, as well as community members, network operators, NGOs, governments and Internet service providers internationally.

With this perspective, the RIPE NCC expresses its full support for the proposal and we believe that the successful completion of this project can benefit the Internet community at large and contribute to the reliable and safe operation of the Internet.

To this end, the RIPE NCC is happy to provide support by providing technical consultation on the operation of BGP and expertise in processing Internet data in the form of system architecture and development. In addition we will make our measurement data available to provide test data for the application under development, and will cooperate in introducing the final product to the community.

The RIPE NCC is an independent, not-for-profit membership organisation that supports the infrastructure of the Internet through technical coordination in its service region, including Europe, Middle East and Central Asia.

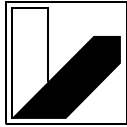
Please do not hesitate to contact me if you need any further information.

Sincerely,



RIPE NCC
RIPE NETWORK COORDINATION CENTRE

Kaveh Ranjbar
Chief Information Officer, RIPE NCC



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November 5th 2020

Object: Teaching Assessment for Soroush Rafiee Rad

To whom it may concern,

This letter provides my general teaching assessment of Soroush Rafiee Rad. The assessment is based on the three and a half years that Soroush has spent in Bayreuth. For most of that period he has been working on a third-party research project with no official teaching duties. He nonetheless gave three courses during that time. Based on the overwhelmingly positive feedback that I had received by then, I have offered him the position of deputy professor at my chair for the Winter semester 2019/20, to take over my teaching duties while on parental leave. Soroush gave three courses that semester. My assessment of these six courses in total is based on direct feedback from students (I am director of undergraduate studies for the program in which Soroush was teaching), and teaching evaluations.

Of the six courses that Soroush taught in Bayreuth, three of them were seminars (15-20 participants) for advanced BA students of the Philosophy and Economics program, and one of them was a seminar for MA students of that same program. He furthermore taught twice the first-year BA "Logic and Argumentation Theory" lecture (~100 participants), once together with me and once taking full responsibility for the lecture.

The feedback that I have received for the Logic and Argumentation Theory lecture, as well as the teaching evaluations, are most excellent. Soroush proved to be a meticulous presenter, with an impressive ability to distill the material to its core concepts. He is also an attentive and responsive lecturer. For the course he also had to manage a team of three TAs, and prepare and grade the final exam, which he did again excellently.

Soroush taught two seminars close to his area of expertise: "Probabilistic Reasoning" and "Philosophy of Probability". The first one expanded on the basics of Bayesian philosophy of science that are covered in the Decision and Game Theory mandatory lecture in the Philosophy and Economics program. The second course

covered the classical questions in philosophy of probability, both in epistemology and for the foundations of physics. Both courses were extremely well attended, which clearly speaks for Soroush's teaching skills. Typically, only a small fraction of our students are interested in abstract or highly theoretical material, the rest preferring rather applied courses in ethics or political philosophy.

Soroush has furthermore shown his ability to go off his own beaten path by developing two seminars on topics outside his core area of research. In the "Decision Theory and Collective Rationality" seminar he introduced the students to the basics of social choice theory and explored its philosophical ramifications, and in the "Epistemic logic" seminar he covered the basics of modal logics for knowledge and belief. Again, the positive reception of both courses went far beyond my own expectations. One participant to the Collective Rationality seminar went even so far as to come expressly to me as program director to tell me that how the course has been an eye-opener for him. He added that, until that seminar, he had found formal and logical methods rather boring... only to realize in his excitement that all the training he had gotten on the topic before Soroush's seminar was by me.

All in all, Soroush is an excellent and versatile lecturer. He is attentive, patient, engaging, and conscientious, and has an extra-ordinary ability to explain and get students interested in quite abstract and difficult material.

Yours sincerely,

Olivier Roy
Chair of Philosophy 1
University of Bayreuth



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