

AmirHossein Sharafi

Curriculum Vitae

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Current Jobs and Positions

- Assistant Professor in Tafresh University
- Knowledge engineer in Borhan Team working on a Semantic Web project supported by National Elites Foundation in Iran under the plan Shahid Ahmadi Roshan, <https://borhan-onto.ir/>
- Non-resident researcher in IPM, Subject: Extending Quantum Dynamic Logic for Emergence in Quantum Systems

Job Experiences

- Data scientist in a knowledge-based company Zi-Doctor, zidoctor.com
- Post-doctoral researcher at Iranian Institute of Philosophy under the supervision of Dr. Asadollah Fallahi supported by Iran National Science Foundation.

Educations

PhD Shahid Beheshti University, Defence date: November 3rd, 2018

- Major: Logic and Algebra
- Thesis Topic: *Quantum Logic and its Algebraic Models*
- Supervisor: Prof. Rajabali Borzooei
- Advisor: Prof. Anatolij Dvurečenskij and Dr. Morteza Moniri

MSc Shahid Beheshti University, Summer 2011

- Major: Mathematical Logic
- Thesis Topic: *Probabilistic Dynamic Epistemic Logic*
- Supervisor: Dr. Morteza Moniri

BSc K. N. Toosi University of Technology, Summer 2008

- Major: Applied Mathematics

Papers

published **R. A. Borzooei***, **A. Dvurečenskij**, and **A. H. Sharafi**, *Material Implications in Lattice Effect Algebras*, Information Sciences, 433-434 (2018), 233 - 240

published **R. A. Borzooei***, **A. Dvurečenskij**, and **A. H. Sharafi**, *Generalized EMV-Effect algebras*, International Journal of Theoretical Physics, 57 (8) (2018), 2267 - 2279

- published **S. Rafiee Rad, A. H. Sharafi* and S. Smets**, *A Complete Axiomatisation for the Logic of Lattice Effect Algebras*, International Journal of Theoretical Physics, 60 (2021), 696–709
DOI: 10.1007/s10773-019-04074-y
- published **A. H. Sharafi* and R. A. Borzooei**, *Quotient Structures in Lattice Effect Algebras*, Kybernetika, 55 (5) (2019), 879 - 895
- major revise **D. Dastgheib, H. Farahani, AH. Sharafi**, *Some Epistemic Extensions of Godel Fuzzy Logic*, arXiv:1605.03828, submitted to Studia Logica
- under preparation **AH. Sharafi**, *Dynamic Epistemic Fuzzy Logics*
- under preparation **A Fallahi, AH. Sharafi**, *The Number of Pretabular Extensions of Classical Relevance Logic*

Recent and in progress research plans

- A Logical Approach on Emergence
- Designing an incremental algorithm for a Semantic Web Reasoner for Borhan Team
- Studying pretabular logics over classical relevant logics using universal algebra and modal logic's techniques
- Extending epistemic fuzzy logics of fuzzy beliefs to epistemic fuzzy logics of fuzzy knowledge and dynamic epistemic fuzzy logic

Courses

- current courses:
- General Mathematics 1 and 2, Tafresh University, 2023 - 2024
 - Basics of computer and programming, Tafresh University, 2023 - 2024
- previous courses:
- Machine Learning, Islamic Azad University, Science and Research Branch, Tehran - Computer Science, 2022 - 2023
 - Mathematical Logic, Islamic Azad University, Science and Research Branch, Tehran - Computer Science, 2022
 - Data Structures and Algorithms, Language: English, for MSc students from Iraq, Islamic Azad University, Science and Research Branch, Tehran - Computer Science, 2021
 - Theory of Computation, Islamic Azad University, Science and Research Branch, Tehran - Computer Science, 2019-2022
 - Algorithm Design, Islamic Azad University, Science and Research Branch, Tehran - Computer Science, 2019-2022
 - non-Classical Logics, Shahid Beheshti University - Computer Science, first semester, 2019-2020.
 - General Mathematics 1, Shahid Beheshti University - Life Sciences and Biotechnology, first semester, 2018-2019.
 - General Mathematics 1, Shahid Beheshti University - Faculty of Chemistry, first semester, 2017-2018.
 - Applied Mathematics, Shahid Beheshti University - Faculty of Earth Sciences, first semesters, 2015-2016 and 2016-2017.

- General Mathematics 1, Applied Mathematics 2, Statistics, Imam Ali University, first and second semesters, 2015-2016.
- Geometry and Basic Mathematics in high schools of Tehran, for around five years.

Teaching

Assistant:

- Mathematical Logic (classical and non-classical logic), Shahid Beheshti University - Faculty of Mathematics and Computer Sciences, 2010-2011 and 2013-2014.
- Foundations of mathematics, Shahid Beheshti University - Faculty of Mathematics, 2013-2014.

Research Visiting

- January 2017 – March 2017 University of Amsterdam, ILLC, **Quantum Logics and Epistemic Logics**
- Under the supervision of Prof. Sonja Smets and Dr. Soroush Rafiee Rad
 - The main research program was about working on quantum logics and finding a logical structure for lattice effect algebras then a dynamic version of it. Beside of my research program I could attend to some courses such as: Quantum Computation, Computational Social Choice and the course of Logic, Knowledge and Science. Moreover, It was the best time to attend many workshops and seminars on logic, language and computation.
- May 2017 – July 2017 Mathematical Institute of the Slovak Academy of Sciences in Bratislava, **Quantum Algebras and Quantum Logics**
- Under the supervision of Prof. Anatolij Dvurečenskij
 - It was the best time to learn more about algebraic quantum structures and to get familiar with a new algebraic structure EMV-algebra which has been introduced by Prof. Dvurečenskij and Dr. Zahiri recently. Not only did I learn many things, but also we could introduce a new structure Generalized EMV-Effect Algebra and we showed that this structure is categorically equivalent to EMV-algebra.

Proceedings

- April 2016 **A Fuzzy Epistemic Logic**, *International Conference on Mathematics of Fuzziness*, Institute for Advanced Studies in Basic Sciences, Zanjan, Iran, April 27-29, 2016
Joint work with: H. Farahani and R. A. Borzooei
- July 2017 **Logic of Lattice Effect Algebras**, *The International Quantum Structures Association (IQSA) workshop in 2017 as a satellite event of the 14th International Conference on Quantum Physics and Logic (QPL)*, Radboud University, Nijmegen, Netherlands, July 4-7, 2017
Joint work with: S. Rafiee Rad and S. Smets
- August 2017 **Logic of Lattice Effect Algebras**, *The 48th annual Iranian mathematics conference*, Bu-Ali Sina University, Hamedan, Iran, August 22-25, 2017
Joint work with: R. A. Borzooei, A. Dvurečenskij, S. Rafiee Rad, S. Smets
- January 2019 **A Strong Complete Schema for logic of Lattice Effect Algebras**, *The 6th Annual Conference of Iranian Association for Logic*, Shahid Beheshti University, Tehran, Iran, January 30-31, 2019

February 2021 **Investigation on Pretabular Logics over Classical Relevance Logic**, *The 8th annual conference of the Iranian Association for Logic*, Tarbiat Modares University, Tehran, Iran, February 17-18, 2021

Honours

- Electing my PhD thesis as the best one related to fuzzy systems in Iranian Fuzzy Systems Society, 2019.
- One of the **Elected Graduate** of faculty of mathematical sciences of Shahid Beheshti University in 2018.
- Electing as the third place in the first mathematical match of reading books in groups (Kalagh ha) for master students in Shahid Beheshti University, 2008.

Executive Activities

- Business development in zidoctor.com
- Doing administrative jobs as the compulsory military serving in Iran, 16th months.
- The managing director of a private institute GNJ to increase mathematical knowledge of students in some ways such as presenting applications of mathematics in some interesting seminars.
- One of the organizers and referees of the first mathematical match of reading books in groups (Kalagh ha) for high school students in Shahid Beheshti University, 2014.
- A member of executive committee of the 6th Annual Conference of Iranian Association for Logic in Shahid Beheshti University (2019).

Accepted abstracts for presentation

July 2018 **On Filter Theory of Lattice Effect Algebras**, *The 14th Biennial IQSA Conference QUANTUM STRUCTURES 2018*, Kazan Federal University, Kazan, Russia, July 16-20, 2018

A.H. Sharafi and R. A. Borzooei

August 2018 **Representing of Generalized EMV-effect Algebras**, *Logic, Algebra and Truth Degrees (LATD) 2018*, University of Bern, Switzerland, August 28-31, 2018

R. A. Borzooei, A. Dvurečenskij, A. H. Sharafi

Some of attended schools, workshops and conferences

- The First IPM Advanced School on Computing: Formal Methods for Design and Analysis of Computer Systems, School of Computer Science, IPM, Tehran, Iran, 11-15 January, 2016.
- Workshop on Modal Logic and its Application in Computer Science, School of Computer Science, University of Tehran, Tehran. Iran, 17 - 21 September, 2016.
- Workshop on Quantum Information Processing, School of Physics, IPM, Tehran, Iran, 27-29 December, 2016.
- The Second IPM Advanced School on Computing: Theory and Practice of Programming Languages, School of Computer Science, IPM, Tehran, Iran, 27-31 August, 2017.

- The First Symposium on Compositional Structures Conference, School of Computer Science (SYCO1), University of Birmingham, Birmingham, UK, 20-21 September, 2018
- A First Annual Spring School of the Iranian Association for Logic, May 17-21, 2021
- Annual Conferences of Iranian Association for Logic.

Colaborating with journals

- Designing the latex style of **Iranian Journal of Fuzzy Systems (IJFS)** from the issue 2019.
- Reviewing for *Studia Logica* and *International Journal of General Systems*

Philosophical Studies

Philosophy of Mathematics

Al-Asfar al-Arba'ah, *Mulla Sadra*

Bidayat al-Hikmah, *Allameh Tabatabaei*

Nihayat al-Hikmah, *Allameh Tabatabaei*

Hikmat Al-Eshragh, *Sohrevardi*

the sections **al-Burhan** and **al-Ilahiyat** of **Kitab al-Shifa**, *Avicenna*

Mantiq, *Mozaffar*

Computer Skills

- Protégé OWL,
- Programming in Python,
- SPARQL query language,
- Excell, SQL programming in SQL server,
- Professional latex user. I designed some latex templates for Shahid Beheshti University, for instance, the latex **template** of Shahid Beheshti University's **theses**.

References

Prof. Rajab Ali Borzooei, *Shahid Beheshti University*, Faculty of Mathematics
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Dr. Hadi Farahani, *Shahid Beheshti University*, Faculty of Computer Sciences
h—farahani@sbu.ac.ir

Dr. Morteza Moniri, *Shahid Beheshti University*, Faculty of Mathematics
ezmoniri@gmail.com

Dr. Asadollah Fallahi, *Iranian Institute of Philosophy*, Logic Group
falahi@yahoo.com

Prof. Sonja Smets, *University of Amsterdam*, Faculty of Humanities and Faculty of Science, full professor of Logic and Epistemology
S.J.L.Smets@uva.nl

Prof. Anatolij Dvurečenskij, *the director of Mathematical Institute of the Slovak Academy of Sciences in Bratislava*
dvurecen@mat.savba.sk

Dr. Soroush Rafiee Rad, *Dutch Institute for Emergent Phenomena (DIEP) and
Institute for Logic, Language, and Computation (ILLC) of the University of Amsterdam.*,
postdoctoral researcher
Soroush.R.Rad@gmail.com