

Curriculum Vitae

PERSONAL DATA

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EDUCATION

Ph.D. Mathematics (Theory of Languages and Automata), Alzahra University, Tehran, Iran, 2008-2012.

Thesis title: (L-valued) tree automata

Supervisor: Prof. M.M. Zahedi; Advisor: Prof. R. Ameri

M.Sc. Applied Mathematics (Theory of Languages and Automata), Alzahra University, Tehran, Iran, 2006-2008.

Thesis title: Topics in Turing machine

Supervisor: Prof. M.M. Zahedi; Advisor : Prof. M.H. Shafazand

B.Sc. Pure Mathematics, University of Sistan and Baluchestan, Zahedan, Iran, 2002-2006.

JOURNAL PAPERS

- 1- M. Ghorani, Characterization of Tree Automata Based on Quantum Logic (Accepted), International Journal of Theoretical Physics, Accepted (2022).
- 2- M. Ghorani, On the relation of deterministic fuzzy tree automata and normal recognizable step mappings (In Persian), Journal of Fuzzy Systems and Applications- Accepted (2022).
- 3- S. Moghari, M. Ghorani, A symbiosis between cellular automata and dynamic weighted multigraph with application on virus spread modeling, Chaos, Solitons & Fractals, 155, 1-13, (2022).
- 4- M. Ghorani, S. Garhwal, S. Moghari, Lattice-valued tree pushdown automata: Pumping lemma and closure properties, International Journal of Approximate Reasoning, 142, 301-323 (2021).
- 5- M. Ghorani, S. Moghari, Decidability of the minimization of fuzzy tree automata with membership values in complete lattices, Journal of Applied Mathematics and Computing, In Press (2021), DOI: <https://doi.org/10.1007/s12190-021-01529-6>
- 6- M. Farhadi Jalalvand, N. Jafari Rad, M. Ghorani, Strength of strongest dominating sets in fuzzy graphs, Communications in Combinatorics and Optimization, 6(2) (2021).
- 7- M. Ghorani, S. Garhwal, A minimization algorithm for fuzzy top-down tree automata over lattices, Journal of Intelligent & Fuzzy Systems, 40(3) (2021).
- 8- S. Garhwal, M. Ghorani, A. Ahmad, Quantum programming language: A systematic review of research topic and top cited languages, Archives of Computational Methods in Engineering, 28(2) (2021).
- 9- M. Farhadi Jalalvand, N. Jafari Rad, M. Ghorani, Some results on the exact 1-step domination graphs, Math Mont, 44(1) (2019)

- 10- M. Ghorani, State hyperstructures of tree automata based on lattice-valued logic, *RAIRO-Theoretical Informatics and Applications*, (2018), <https://doi.org/10.1051/ita/2018004>.
- 11- M. Ghorani, Tree automata based on complete residuated lattice-valued logic: reduction algorithm and decision problems, *Iranian Journal of Fuzzy Systems*, 15(7) (2018).
- 12- M. Ghorani, On characterization of fuzzy tree pushdown automata, *Soft Computing*, 23(4) (2019), <https://doi.org/10.1007/s00500-017-2829-7>.
- 13- M. Ghorani, The equivalence between weighted top-down tree automata, *Journal of Knowledge-Based Engineering and Innovation*, 3 (2017) 782-788.
- 14- M. Ghorani, M.M. Zahedi, Alternating Regular Tree Grammars in the Framework of Lattice-Valued Logic, *Iranian Journal of Fuzzy Systems*, 13(2) (2016) 71-94.
- 15- M. Ghorani, M.M. Zahedi, Coding tree languages based on lattice-valued logic, *Soft Computing*, 21 (14) (2017) 3815-3825.
- 16- M. Ghorani, M.M. Zahedi, On characterization of complete residuated lattice valued tree automata, *Fuzzy Sets and Systems*, 199 (2012) 28-46.
- 17- M. Ghorani, M.M. Zahedi, R. Ameri: Algebraic properties of complete residuated lattice valued tree automata. *Soft Computing*, 16(10) (2012) 1723-1732.
- 18- M. Ghaznavi, A. Azodi, M. Ghorani, A primal-dual algorithm for solving fuzzy multiobjective linear optimization problems, *Operations research in its application*, 17(1) (2020), In Persian

Conference papers

- 1- M. Farhadi-Jalalvand, M. Ghorani, Strongest Exact 1-Step Dominating Set for Fuzzy Graphs, 3rd International Conference on Soft Computing, 2019/11/20, Guilan, Iran.

- 2- M. Ghorani, Pushdown automata based on lattice-valued logic: closure properties and decision problems, 2nd National Conference on Soft Computing, 2017/11/22, Guilan, Iran.
- 3- M. Farhadi-Jalalvand, M. Ghorani, Strength of fuzzy domination in fuzzy graphs, 2nd National Conference on Soft Computing, 2017/11/22, Guilan, Iran.
- 4- M. Ghorani, A pumping lemma for fuzzy tree language with a threshold, 2nd National Conference on Soft Computing, 2017/11/22, Guilan, Iran.
- 5- M. Ghorani, Some results on fuzzy tree automata, 48th Annual Iranian Mathematics Conference, 2017/8/23, Hamedan, Iran
- 6- M. Ghorani, A pumping lemma for fuzzy tree language with a threshold, 2nd National Conference on Soft Computing, 2017/11/22, Guilan, Iran
- 7- M. Ghorani, Pushdown automata based on lattice-valued logic: closure properties and decision problems, 2nd National Conference on Soft Computing, 2017/11/22, Guilan, Iran
- 8- M. Fathadi, M. Ghorani, Strength of fuzzy domination in fuzzy graphs, 2nd National Conference on Soft Computing, 2017/11/22, Guilan, Iran
- 9- M. Ghorani, The equivalence between weighted top-down tree automata, 3rd Conference on Electrical and Computer Engineering Technology, 2017/5/26, Tehran, Iran
- 10- M. Ghorani, M.M. Zahedi, On the connection of hypergroups and tree automata, The 44th Annual Iranian Mathematics Conference, August 27-30, 2013, Mashhad, Iran.
- 11- M. Ghorani, On characterization of alternating regular tree grammar, 5th Iranian Conference on Applied Mathematics, September 8-10, 2013, Hamedan, Iran.

- 12- M. Ghorani, Response function of lattice valued tree automata, 5th Iranian Conference on Applied Mathematics, September 8-10, 2013, Hamedan, Iran.
- 13- M. Ghorani, Tree automata and hypergroups, The 6th Mathematics Conference of Payame Noor University, March 5-6, 2014, Isfahan, Iran.
- 14- M. Ghorani, Direct product of hypergroups induced by tree automata, The 6th Mathematics Conference of Payame Noor University, March 5-6, 2014, Isfahan, Iran.
- 15- M. Ghorani, M.M. Zahedi, The behavior of fuzzy tree automata, Applied Mathematics Conference, March 20-21, 2010, Zahedan, Iran.
- 16- M. Ghorani, M.M. Zahedi, B.A. Ghaznavi-ghosoni, A pumping lemma for lattice-valued tree automata, 11th Iranian Conference on Fuzzy Systems, July 5-7, 2011, Zahedan, Iran.
- 17- M. Ghorani, M.M. Zahedi, R. Ameri, On properties of lattice valued tree automata, 11th Iranian Conference on Fuzzy Systems, July 5-7, 2011, Zahedan, Iran.