

Reza Shami Tanha

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PERSONAL INFORMATION

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SUMMARY

Reza is a Master's graduate in computer science from IASBS in Iran. His research interests include machine learning, specifically graph neural networks (GNNs) and multi-agent reinforcement learning (MARL). He is currently researching the application of machine learning tools, such as using the GNNs in bioinformatics problems, as well as finding ways to enable cooperative teamwork among robotic agents and formulating physical phenomena as mathematical models.

EDUCATION

Institute for Advanced Studies in Basic Sciences (IASBS).	Zanzan, Iran
MSc in Artificial Intelligence, GPA: 16.72/20.00	2019–2023
– Thesis: “Firefighting by Autonomous UAVs Network using Deep Reinforcement Learning”	
– Supervisors: Dr. Mohsen Afsharchi, Dr. Mohsen Hooshmand	
Institute for Advanced Studies in Basic Sciences (IASBS).	Zanzan, Iran
B.S. in Information Technology (IT), GPA: 15.94/20.00	2014–2018
– Thesis: “Designing and Implementing A Mobile Phone System to Remind when to Take Medicine”	
– Supervisor: Dr. Ebrahim Ansari	

RESEARCH INTERESTS

- Machine Learning
- Graph Neural Networks
- Reinforcement Learning
- Multi Agent Reinforcement Learning

PUBLICATIONS

- [1] M. Nasrollahi, R. Shami Tanha, and M. Hooshmand, “Lempel-Ziv-based hyper-heuristic solution for longest common subsequence problem”, in *2023 13th International Conference on Computer and Knowledge Engineering (ICCKE)*, 2023, pp. 124–128. [Online]. Available: <https://doi.org/10.1109/ICCKE60553.2023.10326321>.
- [2] R. Shami Tanha, M. Hooshmand, and M. Afsharchi, “UAV-based firefighting by multi-agent reinforcement learning”, in *2023 13th International Conference on Computer and Knowledge Engineering (ICCKE)*, 2023, pp. 117–123. [Online]. Available: <https://doi.org/10.1109/ICCKE60553.2023.10326250>.
- [3] R. Shami Tanha, M. Sadighian, A. Zabihian, M. Hooshmand, and M. Afsharchi, “MAD-TI: Meta-path aggregated-graph attention network for drug target interaction prediction”, in *2023 31st International Conference on Electrical Engineering (ICEE)*, 2023, pp. 619–624. [Online]. Available: <https://doi.org/10.1109/ICEE59167.2023.10334728>.
- [4] A. Zabihian, F. Z. Sayyad, S. M. Hashemi, R. Shami Tanha, M. Hooshmand, and S. Gharaghani, “DEDTI vs IEDTI: Efficient and predictive models of drug-target interactions”, *Scientific Reports*, vol. 13, pp. 1–18, 2023. [Online]. Available: <https://doi.org/10.1038/s41598-023-36438-0>.

EXPERIENCES

- **Research Assistant** at IASBS, Departemant of Computer Sciences and IT May 2023 - August 2023
Supervisor: Dr. Mohsen Hooshmand

The main focus of my research was the continuation of my thesis. The duration of the position was three months. I conducted my research on the multi-agent reinforcement learning topic. Additionally, I’ve studied the longest common subsequences (LCS) problem and acquired a good understanding of that. My supervisor and I published our research results at the ICCKE conference held at Ferdowsi University of Mashhad, Iran.

- **Freelancer Website Developer** January 2023 - April 2023
Develop and maintain an online questionnaire website, online.iran.liara.run

I’ve developed a questionnaire website used for psychological purposes. It has two parts. The first part is a simulated social media. In this social media, the patients interact with the other users and experience three conditions. These conditions were inclusion, exclusion, and ignorance. The second part is evaluating the patient’s reaction to the experienced condition. Patients fill out some questionnaires for evaluation. Once completed, the website sends the result to the server application I designed.

RELEVANT GRADUATE COURSES PASSED

- **Machine Learning**, 2020
 - Bishop, Christopher M. (2006). “Pattern recognition and machine learning”. New York :Springer,
- **Advanced Data Mining**, 2020
 - Han, J., Kamber, M. & Pei, J. (2012). “Data mining concepts and techniques”, third edition Morgan
- **Deep Learning**, 2020
 - Bengio, Y. (2016). “Deep Learning”. MIT Press.
- **Advanced Artificial Intelligence**, 2019
 - Russell S. J. & Norvig P. (2010). “Artificial intelligence : a modern approach (3rd ed.)”. Pearson.
- **Multi Agent Systems**, 2020
 - Wooldridge, M. (2009). “An introduction to multiagent systems”. John wiley & sons.

TEACHING

- **Teaching Assistant** at IASBS, Departemant of Computer Sciences and IT September 2022 - December 2022
Course name: Reinforcement Learning, Teacher: Dr. Mohsen Hooshmand
- **Teaching Assistant** at IASBS, Departemant of Computer Sciences and IT January 2022 - April 2022
Course name: Advanced Data Mining, Teacher: Dr. Zahra Narimani
- **Teaching Assistant** at IASBS, Departemant of Computer Sciences and IT January 2021 - April 2021
Course name: Multi Agent Systems, Teacher: Dr. Mohsen Afsharchi
- **Teaching Assistant** at IASBS, Departemant of Computer Sciences and IT April 2017 - June 2017
Course name: Advanced Programming, Teacher: Dr. Ebrahim Ansari
- **Teaching Assistant** at IASBS, Departemant of Computer Sciences and IT January 2016 - April 2016
Course name: Data Structures, Teacher: Dr. Mehdi Khosravian
- **Teaching Assistant** at IASBS, Departemant of Computer Sciences and IT September 2015 - December 2015
Course name: Basic Programming, Teacher: Dr. Ebrahim Ansari

COMPUTER SKILLS

Programming languages:

- C++ (expert)
- Python (expert)
- JavaScript (experienced)
- Java (good knowledge)

Back-End:

- Node.JS (experienced)
- Express.JS (experienced)
- PHP (experienced)
- XAMP (experienced)

Databases:

- MongoDB (good knowledge)
- MySQL (experienced)

Operation Systems:

- Linux
- Windows

Machine Learning and Deep Learning:

- PyTorch (expert), TensorFlow (experienced)
- NumPy (expert), SciPy (expert), Keras (experienced), Pandas (expert)
- Matplotlib (expert)

Front-End:

- Html, CSS, JavaScript (experienced)
- Bootstrap (experienced)
- jQuery (experienced)

Scientific software:

- MATLAB (experienced)

Others:

- L^AT_EX (good knowledge)
- Heroku (good knowledge)
- Git (experienced)
- Express JS and mongoose libraries in Node.JS

LANGUAGE SKILLS

- **English:** Upper Intermediate
- **Persian:** Native
- **Azari:** Native

CONFERENCES AND SEMINARS ATTENDED

- 13th International Conference on Computer and Knowledge Engineering (ICCKE) (1–2 November 2023, Ferdowsi University of Mashhad), Mashhad, Iran.
- Computational methods for modelling bionano interactions and nanomaterials functionality workshop (26–28 June 2023, CECAM-IRL-Online), Dublin, Ireland.
- 31st International Conference on Electrical Engineering (ICEE) (9–11 May 2023, Electrical Engineering Department, Amirkabir University of Technology), Tehran, Iran.
- Fifth IPM Advanced School On Computing & Artificial Intelligence (5–8 September 2021, IPM Advanced School on Computing), Tehran, Iran.
- PyTorch Workshop (4–7 SEP 2021, Computer Science Department, IASBS), Zanjan, Iran.

INTERESTS AND HOBBIES

- Reading books
- Traveling
- Building desktop PCs

VOLUNTARY ACTIVITIES

- Create the IASBS thesis template using \LaTeX . Here is the link

REFERENCES

- **Dr. Mohsen Hooshmand**
Institute for Advanced Studies in Basic Sciences (IASBS), Zanjan, Iran
Assistant Professor
 - Thesis supervisor
 - Email: mohsen.hooshmand@iasbs.ac.ir
 - Website: <https://iasbs.ac.ir/~mohsen.hooshmand>
- **Dr. Zahra Narimani**
Institute for Advanced Studies in Basic Sciences (IASBS), Zanjan, Iran
Assistant Professor
 - Email: narimani@iasbs.ac.ir
 - Website: <https://iasbs.ac.ir/~narimani>