Ehsan Montahaei

Contact Info

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Education

2016–2019 **M.Sc. in Artificial Intelligence and Robotics**, *Sharif University of Technology, Computer Engineering Department*, Tehran, Iran.
- Overall GPA: **4** out of 4 (**18.41** out of 20)

2011–2016 **B.Sc. in Software Engineering**, *Kharazmi University (formerly known as Tarbiat Moallem University), Engineering Department*, Tehran, Iran.
- Overall GPA of last two years: **3.64** out of 4
- Overall GPA: 3.17 out of 4

Masters Thesis

Title: *Adversarial Networks for Sequence Generation*

Advisor: Dr. Mahdieh Soleymani Baghshah

Grade: **20** out of 20

Description: The thesis is explored the GANs usage in discrete sequence generation, especially text generation. I found some shortage in one of the common evaluation scenarios, and a new metric was introduced for enhancement of evaluation. Also, a new method supporting theoretical analysis was introduced which were comparable to the state of the art methods.

Related Courses

- Deep Learning(20/20) - Machine Learning(19.2/20) - Probabilistic Graphical Models(19.4/20) - Video Processing(20/20) - Signal and Systems(18.2/20) - Social and Economics Networks(19.2/20) - Artificial Intelligence(18.75/20)

Experience

2019-present **Research Assistant**, *Machine Learning Lab, Sharif University of Technology*.
Advisor: Dr. Mahdieh Soleymani Baghshah
Gigapixel Histopathology images and cancer detection.

Mar - Sep 2018 **Research Assistant**, *Machine Learning Lab at Sharif University of Technology, Physics Department of Shahid Beheshti University*.
Advisors: Dr. Mahdieh Soleymani Baghshah, Dr. Alireza Vafaei Sadr
Cosmic string simulation using Generative Adversarial Networks

Teaching Assistant, *Sharif University of Technology*.

Spring 2019 - Deep Learning (Graduate Course)

Fall 2018 - Machine Learning (Graduate Course)

Spring 2018 - Head TA of Probabilistic Graphical Models (Graduate Course)

Fall 2017 - Modern Information Retrieval

Fall 2017 - Probability and Statistics

Summer 2015 **Summer Intern**, *Institute for Research in Fundamental Sciences*, Tehran, Iran.
Advisor: Dr. Saeid Gorgin
Research on high performance and CPU parallel solution for Dynamic Skyline Problem.

Publications

2019 **Montahaei, E.**, Alihosseini, D. and Baghshah, M.S., 2019, June. Jointly Measuring Diversity and Quality in Text Generation Models. In Proceedings of the Workshop on Methods for Optimizing and Evaluating Neural Language Generation (pp. 90-98).

2018 **Montahaei, E.**, Ghorbani, M., Baghshah, M.S. and Rabiee, H.R., 2018. Adversarial classifier for imbalanced problems. arXiv preprint arXiv:1811.08812.

2015 **Montahaie, E.**, Ghafouri, M., Rahmani, S., Ghasemi, H., Ba-Khtiar, F.S., Zamanshoar, R., Jafari, K., Gavahi, M., Mirzaei, R., Ahmadzadeh, A. And Gorgin, S., 2015. Efficient continuous skyline computation on multi-core processors based on manhattan distance. Dans 13. ACM. In IEEE International Conference on Formal Methods and Models for Codesign, MEMOCODE (pp. 21-23).

Awards and Achievements

Academic

2019 ○ Offered to attend *Sharif University of Technology*'s PHD program in AI with Award

Aug 2016 ○ Ranked 4th in the 21st National Scientific Olympiad for the University Students in Computer Engineering

Aug 2016 ○ Admission to *Sharif University of Technology* for graduate studies, ranked 9th in Artificial Intelligence (17th in Computer Engineering) among 21'534 participants in National Entrance Exam

Dec 2015 ○ Honored by Director of Engineering Department of *Kharazmi University* for outstanding research achievements

Jan 2010 ○ Semi-finalist at 28th National Mathematics Olympiad, Semi-finalist at 20th National Computer Olympiad, Semi-finalist at 6th National Astronomy Olympiad

Machine Learning Contests

Apr 2020 ○ Ranked 5th in the MoNuSAC 2020 (3rd in Post-Challenge), *ISBI 2020, USA*

Jan 2020 ○ Ranked 3rd in the HEROHE, *ECDP 2020, Portugal*

Mar 2019 ○ Ranked 3rd among more than 300 teams in the Sharif Data Days 2019, *SUT*[1]

Dec 2017 ○ Ranked 1st team in the first Iranian BCI Competition, *National Brain Mapping Lab, Iran*

Programming Contests

Dec 2015 ○ Ranked 10th in the ACM/ICPC Collegiate Programming Contest, West Asia Region

July 2015 ○ Ranked 2nd team in MEMOCODE Co-Design Contest'15, *Texas at Austin University, USA*

Dec 2014 ○ Ranked 12th in the ACM/ICPC Collegiate Programming Contest, West Asia Region

Computer Security Contests

Feb 2018 ○ Ranked 4th among 682 teams (1st among Iranian teams) in the eighth international online security contest, *SUT*

Dec 2016 ○ Ranked 1st among 700 teams in the seventh international online security contest, *SUT*

Feb 2016 ○ Ranked 1st among Iranian teams in the sixth international online security contest, *SUT*

Feb 2015 ○ Ranked 1st in Computer Forensics section of the fifth security contest, *SUT*

Nov 2013 ○ Ranked 1st in Computer Forensics section of the fourth security contest, *SUT*

[1] Sharif University of Technology

Projects

Research Projects

Visual Question Answering, *Tensorflow*.
Implementation of a solution to VQA dataset based on CNN and LSTM.

Matrix Factorization, *PGM*.
EM algorithm, Variational Inference, and Gibbs sampling method are investigated.

Liver Segmentation.
Segmentation of liver and liver lesions by 3D U-Net.

Brain EEG Signal, *Scikit-Learn*.
Different ML models are tested on the EEG signal to recognize some actions from the brain.

Vision-based 360-degree Robot, *OpenCV, OpenMP*.
Design and construction of a mobile robot with the ability to move to specific points on a board.

Miscellaneous Projects

Privacy-focused DICOM web panel, *Flask*.
The system is prepared for use in an Active Learning scenario.

English with Movie, *JavaScript*.
A web-based video player to leverage movies for practicing language skills.

Ink Saver, *OpenCV, Scikit-Image* .
A tool to simplify slides and document images for saving the ink of the printers.

Dynamic Skyline Problem, *OpenMP*.
Design and implementation of a high-performance and distributed solution to the Dynamic Skyline Problem.

MIPS CPU with Pipeline, *VHDL*.
A MIPS CPU is simulated using VHDL. Also, an assembler is developed for testing the CPU.

Skills

Programming	Python, C++, JavaScript, Bash, Matlab/Octave, PHP
Framework	PyTorch, Tensorflow, OpenCV, Scikit-Learn, Pandas, OpenMP, Flask, Scapy, Sage Math, CVXPY
Miscellaneous	Linux, Git

Languages

Persian:	**Native**
English:	**Professional working proficiency**

References

- Dr. Mahdieh Soleymani Baghshah, Assistant Professor, Sharif University of Tech
- Dr. Azadeh Mansouri, Assistant professor, Kharazmi University
- Dr. Saeid Gorgin, HPC Director, Institute for Fundamental Science
- Dr. Alireza Vafaei Sadr, Postdoctrol Fellow, Physics School, Institute for Fundamental Science