Pouya Pezeshkpour

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Education

2015 – 2022 **Ph.D., Electrical Engineering/Machine Learning**, University of California, Irvine, Advised by Prof. Sameer Singh.
M.Sc. in Electrical Engineering/Machine Learning.

2010 – 2015 **B.Sc., Electrical Engineering**, Sharif University of Technology, Tehran, Iran.
Minor in Pure Mathematics.

Positions

2023 - Now **Research Scientist, Megagon Labs**.
Working on natural language understanding, interpretability and analysis of models, and knowledge representation and reasoning.

Summer 2021 **Research Intern, Semantic Machines at Microsoft Research**.
Supervisor: Prof. Benjamin Van Durme.
Working on active dialogue simulation in conversational systems using GPT-3.

Summer 2020 **Machine Learning Engineer Intern, Siri Knowledge Group at Apple**.
Supervisor: Xiao Ling.
Working on adversarial augmentation for query understanding.

Summer 2019 **Research Intern, Semantic Scholar Group at Allen Institute for AI**.
Supervisor: Prof. Doug Downey.
Working on question generation for assisted flashcard study of scientific papers.

Summer 2018 **Research Intern, Fujitsu Laboratories of America**.
Supervisor: Ramya Srinivasan.
Working on generating user-friendly explanations for loan denial application.

Summer 2014 **Research Intern, The Chinese University of Hong Kong**.
Supervisor: Prof. Chandra Nair.
Working on hypercontractivity calculations for the binary symmetric case.

Research Interests

NLP — NLU, Interpretability, and Knowledge Representation and Reasoning.

Knowledge Graphs — Completion, Interpretability, Adversarial Attacks, and Classification.

Vision — Interpretability, Active Learning, and Few-Shot Learning.

Honors and Awards

- NEC Laboratories Student Research Fellowship 2021-2022 (80,000 $).
- Best Paper Runners Up at AKBC 2020.
- AWS Research Award 2019-2020.
- Henry Samueli Fellowship, University of California, Irvine, 2015-2016.
- Member of Society for Exceptional Talents at Sharif University of Technology.

Research Publications

Journals and Conferences

1. Wu, Y., Iso, H., **Pezeshkpour**, **P.** et al. (2024). *"Less is More for Long Document Summary Evaluation by LLMs"*, The European Chapter of the Association for Computational Linguistics (**EACL**).
2. **Pezeshkpour**, **P.** (2023). *"Measuring and Modifying Factual Knowledge in Large Language Models"*, International Conference on Machine Learning and Applications (**ICMLA**).
3. Srivastava, A., Rastogi, A. et al. (2023). *"Beyond the Imitation Game: Quantifying and extrapolating the capabilities of language models"*, Transactions on Machine Learning Research (**TMLR**).
4. **Pezeshkpour**, **P.**, Jain, S., Singh, S., & Wallace, B. (2022). *"Combining Feature and Instance Attribution to Detect Artifacts"*, Findings of the Association for Computational Linguistics (**ACL Findings**).
5. Chan, Y., **Pezeshkpour**, **P.**, Geng, C., & Jafar, S. A. (2022). *"An Extremal Network Theory for the Gain of Optimal Power Control over Scheduling"*, IEEE Transactions on Wireless Communications.
6. **Pezeshkpour**, **P.**, Jain, S., Wallace, B., & Singh, S. (2021). *"An Empirical Comparison of Instance Attribution Methods for NLP"*, Proceedings of the 2021 Conference of the North American Chapter of the Association for Computational Linguistics (**NAACL**).
7. Khashabi, D., Cohan, A., Shakeri, S., Hosseini, P., **Pezeshkpour**, **P.** et al. (2021). *"ParsiNLU: A Suite of Language Understanding Challenges for Persian"*, Transactions of the Association for Computational Linguistics (**TACL**).
8. **Pezeshkpour**, **P.**, Tian, Y., & Singh, S. (2020). *"Revisiting evaluation of knowledge base completion models"*, Automated Knowledge Base Construction (**AKBC**). (nominated for best paper award).
9. **Pezeshkpour**, **P.**, Tian, Y., & Singh, S. (2019a). *"Investigating Robustness and Interpretability of Link Prediction via Adversarial Modifications"*, Proceedings of the 2019 Conference of the North American Chapter of the Association for Computational Linguistics (**NAACL**).
10. **Pezeshkpour**, **P.**, Chen, L., & Singh, S. (2018). *"Embedding Multimodal Relational Data for Knowledge Base Completion"*, Proceedings of the 2018 Conference on Empirical Methods in Natural Language Processing (**EMNLP**).
11. **Pezeshkpour**, **P.**, & Behroozi, H. (2014). *"Optimal tradeoff between source and state distortions over a Gaussian channel using single and hybrid digital analog codes"*. IEEE, 7'th International Symposium on Telecommunications (**IST**).

Workshops and Symposias

1. Seshadri, P., **Pezeshkpour**, **P.**, & Singh, S. (2023). *"Quantifying Social Biases Using Templates is Unreliable"*. NeurIPS Workshop on Trustworthy and Socially Responsible Machine Learning (TSRML).
2. **Pezeshkpour**, **P.**, Zhao, Z., & Singh, S. (2020a). *"On the Utility of Active Instance Selection for Few-Shot Learning"*. NeurIPS Workshop on Human, Model in the Loop Evaluation, and Training Strategies (HAMLETS).
3. **Pezeshkpour**, **P.**, Zhao, Z., & Singh, S. (2020b). *"Using Data Importance for Effective Active Learning"*. CVPR workshop on Visual Learning with Limited Labels (VL3).
4. **Pezeshkpour**, **P.**, Tian, Y., & Singh, S. (2019b). *"Integrating Local Structure into Knowledge Graph Embeddings"*. SoCal NLP Symposium.
5. Srinivasan, R., Chander, A., & **Pezeshkpour**, **P.** (2018). *"Generating User-friendly Explanations for Loan Denials Using GANs"*. NeurIPS Workshop on Challenges and Opportunities for AI in Financial Services.
6. **Pezeshkpour**, **P.**, Guestrin, C., & Singh, S. (2017). *"Compact Factorization of Matrices Using Generalized Round-rank"*. Southern California Machine Learning Symposium.

Patents

1. **Pezeshkpour**, **P.**, Malur Srinivasan, R., & Chander, A. (2020a). *User-Friendly Explanation Production Using Generative Adversarial Networks"*. US Patent App. 16/278,604.
2. **Pezeshkpour**, **P.**, Malur Srinivasan, R., & Chander, A. (2020b). *"Explanations Generation with Different Cognitive Values Using Generative Adversarial Networks"*. US Patent App. 16/278,609.

Professional Experience

Workshop Organizing

- 2021 Co-organized Explainable Graph-Based Machine Learning workshop at AKBC
- 2020 Co-organized Knowledge Bases and Multiple Modalities workshop at AKBC
- 2019 Co-organized Knowledge Bases and Multiple Modalities workshop at AKBC

Review Service

- 2021 Reviewer at NeurIPS, NAACL.
- 2020 Reviewer at NeurIPS, ICLR, AAAI, EMNLP.
- 2019 Reviewer at NeurIPS, ICLR, EMNLP.
- 2018 Reviewer at EMNLP.

Relevant Courses

- Machine Learning, Natural Language Processing, Neural Networks, Probabilistic Learning, Information Theory, Random Processes, Linear Algebra, and Convex Optimization.

Skills

- Coding: Python (Primary), Matlab.
- Frameworks: Pytorch (Primary), Keras, Tensorflow, Scikit-Learn, AllenNLP.

References

Available on Request