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.

Research Interests

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

NLP — Interpretability, Adversarial Attacks, Question Answering, and Text Generation.

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

Internships

Summer 2021 **Research Intern, Semantic Machines at Microsoft Research**.
Supervisor: Prof. Benjamin Van Durme.
"Active Dialogue Simulation in Conversational Systems Using GPT-3", actively guiding dialogue generation using GPT-3 to populate low-resource domain data for training conversational systems.

Summer 2020 **Research Intern, Siri Knowledge Group at Apple**.
Supervisor: Xiao Ling.
"Adversarial Augmentation for Query Understanding", improving robustness and performance of Siri question answering system through creating adversarial samples.

Summer 2019 **Research Intern, Semantic Scholar Group at Allen Institute for AI**.
Supervisor: Prof. Doug Downey.
"Question Generation and Targeting for Assisted Flashcard Study of Scientific Papers", providing a personalize memory assistant technology by designing an automatic question generation model and active spaced repetition algorithm.

Summer 2018 **Research Intern, Fujitsu Laboratories of America**.
Supervisor: Ramya Srinivasan.
"Generating User-Friendly Explanations", generating a user-friendly explanation for models prediction over loan denial application.

Summer 2014 **Research Intern, The Chinese University of Hong Kong**.
Supervisor: Prof. Chandra Nair.
"Hypercontractivity Calculations for the Binary Symmetric Case".

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

Conference Proceedings

1. **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**).
2. **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**).
3. **Pezeshkpour**, **P.**, Tian, Y., & Singh, S. (2020). *"Revisiting evaluation of knowledge base completion models"*, Automated Knowledge Base Construction (**AKBC**). (nominated for best paper award).
4. **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**).
5. **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**).
6. **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**).

Journal Articles

1. Srivastava, A., Rastogi, A. et al. (2022). *"Beyond the Imitation Game: Quantifying and extrapolating the capabilities of language models"*. *Submitted to* Transactions on Machine Learning Research (**TMLR**).
2. 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.
3. 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**).

Workshop and Symposia

1. **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).
2. **Pezeshkpour**, **P.**, Zhao, Z., & Singh, S. (2020b). *"Using Data Importance for Effective Active Learning"*. CVPR workshop on Visual Learning with Limited Labels (VL3).
3. **Pezeshkpour**, **P.**, Tian, Y., & Singh, S. (2019b). *"Integrating Local Structure into Knowledge Graph Embeddings"*. SoCal NLP Symposium.
4. 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.
5. **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