



# Pouya Pezeshkpour

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🌐 <https://pouyapez.github.io>




## Education

- 2015 – Present      **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.

## 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, Allen Institute for AI.**  
Supervisor: Prof. Doug Downey.  
"Question Generation and Targeting for Assisted Flashcard Study of Scientific Papers", providing a personalized 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".

## 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.

## Honors and Awards

-  NEC Laboratories [Student Research Fellowship](#) 2021-2022 (80,000 \$).
-  [Best Paper Runners Up](#) at AKBC 2020.
-  AWS Research Award 2019-2020 (2,500 \$).
-  Henry Samueli Fellowship, University of California, Irvine, 2015-2016.
-  Member of "Society for Exceptional Talents" at Sharif University of Technology.

## Research Publications

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### Journal Articles

- 1 Chan, Y., **Pezeshkpour, P.**, Geng, C., & Jafar, S. A. (2021). "An Extremal Network Theory for the Gain of Optimal Power Control over Scheduling". Submitted to IEEE Transactions on Wireless Communications.
- 2 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).

### Conference Proceedings

- 1 **Pezeshkpour, P.**, Subhro, R., Chen, C., Shin, R., & Van Durme, B. (2022). "Active Dialogue Simulation in Conversational Systems Using GPT-3", Submitted to Association for Computational Linguistics (ACL).
- 2 **Pezeshkpour, P.**, Jain, S., Singh, S., & Wallace, B. (2022). "Combining Feature and Instance Attribution to Detect Artifacts", Submitted to Association for Computational Linguistics (ACL).
- 3 **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).
- 4 **Pezeshkpour, P.**, Tian, Y., & Singh, S. (2020). "Revisiting evaluation of knowledge base completion models", Automated Knowledge Base Construction (AKBC). (nominated for best paper award).
- 5 **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).
- 6 **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).
- 7 **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<sup>th</sup> International Symposium on Telecommunications (IST).

### 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

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- 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

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### 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

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

## Skills

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