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Mahnaz Koupaee

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EDUCATION

Stony Brook University, New York, USA
Ph.D. in Computer Science, Department of Computer Science, 2019-2025 (expected)
Advisor: Prof. Niranjan Balasubramanian

University of California Santa Barbara, California, USA
M.S. in Computer Science, Department of Computer Science, 2016-2018
Thesis: **Abstractive Text Summarization Using Hierarchical Deep Reinforcement Learning**
Advisor: Prof. William Wang

Iran University of Science and Technology, Tehran, Iran
M.S. in Software Engineering, School of Computer Engineering, 2012-2014
Advisor: Prof. Mohammad Reza Kangavari

Alzahra University, Tehran, Iran
B.S. in Computer Engineering (Software Engineering Major),
School of Computer Engineering, 2007-2012

RESEARCH INTERESTS

- Natural Language Processing
- Deep Learning
- Reinforcement Learning

WORK EXPERIENCE

Applied Scientist Intern. Amazon AWS AI, May 2024-Aug 2024.
Mentor: Hang Su.
Project: Automatic Summarization Evaluation via Multi-agent LLM Debate

Applied Scientist Intern. Amazon Alexa AI, June 2023-Dec 2023.
Mentors: Mengwen Liu, Markus Dreyer, Kevin Small.
Project: Improving abstractive text summarization via intermediate outlines

SELECT PUBLICATIONS

1. Sugam Devare*, Mahnaz Koupaee*, et al. **"SAGEViz: SchemA GEneration and Visualization"**, In Proceedings of the 2023 Conference on Empirical Methods in Natural Language Processing: System Demonstrations.
2. Mahnaz Koupaee, Greg Durrett, Nathaneal Chambers, Niranjan Balasubramanian, **"Modeling Complex Event Scenarios via Simple Entity-focused Questions "**, In Proceedings of the 17th Conference of the European Chapter of the Association for Computational Linguistics (EACL 2023).
3. Sayontan Gosh, Mahnaz Koupaee, Isabella Chen, Francis Ferraro, Nathaneal Chambers, Niranjan Balasubramanian, **"PASTA: A Dataset for Modeling Participant States in Narratives"**, Transactions of the Association for Computational Linguistics (TACL 2023)

4. Mahnaz Koupaee, Greg Durrett, Nathaneal Chambers, Niranjan Balasubramanian, **"Don't Let Discourse Confine Your Model: Sequence Perturbations for Improved Event Language Models"**, In Proceedings of the 59th Annual Meeting of the Association for Computational Linguistics and the 11th International Joint Conference on Natural Language Processing (Volume 2: Short Papers) (pp. 599-604). 2021.
5. Mohaddeseh Bastan, Mahnaz Koupaee, Youngseo Son, Richard Sicoli, Niranjan Balasubramanian, **"Author's Sentiment Prediction"**, In Proceedings of the 28th International Conference on Computational Linguistics, pp. 604-615. 2020.
6. Heeyoung Kwon, Mahnaz Koupaee, Pratyush Singh, Gargi Sawhney, Anmol Shukla, Keerthi Kumar Kallur, Nathanael Chambers, Niranjan Balasubramanian, **"Modeling Preconditions in Text with a Crowd-sourced Dataset"**, In Proceedings of the 2020 Conference on Empirical Methods in Natural Language Processing: Findings, pp. 3818-3828. 2020.
7. Mahnaz Koupaee, William Yang Wang, **"WikiHow: A Large Scale Text Summarization Dataset"**, arXiv preprint arXiv:1810.09305.
8. Mahnaz Koupaee, William Yang Wang, **"Analyzing and Interpreting Convolutional Neural Networks"**, arXiv preprint arXiv:1810.09312.
9. Mahnaz Koupaee, Yuanyang Zhang, Tie Bo Wu, Mitchell Cohen, Linda Petzold, **"Identification of Disease States for Trauma Patients using Commonly Available Hospital Data"**, In proceedings of the 8th IEEE International Conference on Computational Advances in Bio and Medical Sciences (ICCABS18), 2018.

Academic Positions

Research Assistant at Natural Language Understanding Lab, Stony Brook University, 2019-Now

- `Supervisor:` Prof. Niranjan Balasubramanian
- `Projects:` **Event Language Modeling:** Event language modeling is used to unfold the events in a scenario. Existing language models depend on the discourse order which has its own shortcomings. The broad goal is to improve the event schematic representations from multiple aspects.

Research Assistant at Natural Language Processing Lab, UC Santa Barbara, 2017-2018

- `Supervisor:` Prof. William Wang
- `Projects:`

  HRL Summarization Agent: To improve the performance and the level of abstraction of the existing systems, a new abstractive summarization technique using hierarchical reinforcement learning is proposed.

  Text Summarization Dataset: In this work, we try to construct a large-scale, diverse dataset with higher levels of abstraction using the *WikiHow* knowledge base. Unlike most of the existing datasets, articles in WikiHow are not news articles with journalistic style.

  Neural Networks Visualization: Interpreting the ability of neural models to capture linguistic properties for NLP tasks through visualization is the focus of the project. Moreover, the limitations of models are recognized and decisions for future designs can be made more wisely.

Research Assistant at Computational Science and Engineering Research Group, UC Santa Barbara, 2016 - 2017

- `Supervisor:` Prof. Linda Petzold
- `Projects:`

  Mortality Prediction using Medical Notes: Notes written by medical service providers during patients stay in hospital as a rich source of detailed information is not sufficiently exploited. In this project, we propose methods to utilize the unstructured texts to predict mortality.

  Identification of Trauma Patients States using Time-series Data: To assist in decision-making in diagnosis and treatment of trauma patients with severe injuries, we propose a hidden Markov model for the identification of disease states through which patients progress.

Research Assistant at Computational Cognitive Lab, IUST, 2012 - 2015

- Supervisor: Prof. Mohammad Reza Kangavari
- Project:
  Data Management in Wireless Sensor Networks: One of the most important challenges of WSNs is the distributed management of the huge amount of data produced by sensors in network to reduce data traffic in network and minimize the energy consumption. In this project, a distributed, dynamic fusion algorithm is introduced.

Teaching Assistant at Stony Brook University, Department of Computer Science
- CSE 538: Natural Language Processing, Fall 2022
- CSE 215: Foundations of Computer Science, Fall 2019

Teaching Assistant at UC Santa Barbara, Department of Computer Science, 2016 - 2018
- CS 4: Computer Science Bootcamp, Summer 2017
- CS 8: Introduction to Programming (Python programming), Fall 2016, Spring 2017, Spring 2018
- CS 48: Computer Science Project, Winter 2017
- CS 56: Advanced Applications Programming (Java programming), Summer 2018
- CS 64: Computer Organization and Logic Design, Winter 2018
- CS 138: Automata and Formal Languages, Fall 2017

SERVICES

Reviewer
- ACL Rolling Review 2023-
- EACL 2023
- EMNLP 2022, 2021
- AKBC 2021

HONORS AND AWARDS

- Winner of Honorary Mention as Outstanding M.S. Student for 1 Semester, Iran University of Science and Technology, Spring 2013.
- Winner of Honorary Mentions as Outstanding B.S. Student for 2 Semesters, Fall 2010, Spring 2011.
- Scored the 8th rank among all participants (70,000) in the nationwide universities entrance examination for the languages, Spring 2007.

SELECTED COURSES

Deep Learning for NLP, Pattern Recognition and Machine Learning, Data and Knowledge Bases, Information Retrieval, Network Science, Advanced Databases, Distributed Systems.

Google Scholar: Mahnaz Koupaee
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