Ghazaleh Kazeminejad

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# Professional Experience

**AI Engineer**

IBM watsonx

Oct 2022 - Present

**NLP Research Scientist**

RedShred

Jan 2022 – September 2022 (1 year 9 months)

\* Conducted research, ideation, proof-of-concept, and system design to develop novel innovative technologies for cross-modal cross-lingual document understanding, automation, search and relevance, and information extraction, addressing challenging real-world business problems, leveraging the latest advancements in the field of AI.

\* Implemented neural search techniques for information retrieval on documents at scale, leveraging vector databases like Milvus and Pinecone, and utilizing Large Language Models (LLMs) using HuggingFace, PyTorch, and/or TensorFlow.

\* Created end-to-end solutions for automatic annotation to develop new domain-specific datasets by applying generative AI technologies and other ML algorithms.

\* Created expert chatbots and question answering systems using generative AI, transformer models and knowledge graphs, and performed user-centric experiments.

\* Developed end-to-end solutions for multilingual and multimodal problems by deep learning and ML modeling in Python.

\* Applied fine-tuning techniques (causal and MLM) to LLMs for downstream applications, optimizing their performance.

\* Collaborated closely with the product, engineering, data science, and research teams to help customers be successful using RedShred’s products and influence the company’s roadmap.

\* Demonstrated leadership by spearheading and leading the proposal writing initiatives for AI-related topics, cooperating with internal teams and external partners, articulating

**Graduate Research Assistant**

University of Colorado Boulder

Jan 2015 - Dec 2021 (7 years)

\* Conducted in-depth research and developed neuro-symbolic AI methods, focusing specifically on Machine Reading Comprehension and Explainable AI, which formed the basis of my PhD dissertation.

\* Applied semantic web technologies and leveraged knowledge graphs to enhance various NLP tasks such as information extraction, clustering, and text classification on 6 different projects.

\* Utilized linguistic analysis techniques to enhance feature engineering for the development of machine learning models.

\* Demonstrated expertise in improving NLP lexical resources to enhance the performance of NLP systems.

\* Successfully applied NLP techniques to address challenges in low-resource languages, contributing to the development of language-specific models and tools.

\* Published a significant body of academic work, including 14 papers, spanning conferences, workshops, and journals, showcasing my contributions to the field and expertise in the subject matter.

**Data Science Intern**

Jet.com

Jun 2019 - Aug 2019 (3 months)

\* Interned with the "Search" team at Walmart eCommerce, focusing on enhancing the search retrieval performance of the Walmart e-Commerce App and Website.

\* Collaborated with the team to improve the in-house product ontology, optimizing search relevance and ranking for an enhanced user experience.

\* Utilized statistical and machine learning techniques to develop models and algorithms for search ranking and relevance computation optimization.

\* Worked closely with cross-functional teams, including data engineers and product managers, to implement and deploy improvements to the search system.

# Education

**University of Colorado Boulder**

Doctor of Philosophy (Ph.D.), Computational Linguistics

Jan 2014 - May 2023

Extensively investigated the integration of knowledge-aware methods with neural approaches to enhance downstream NLP applications such as Machine Reading Comprehension for Question Answering and Information Extraction. Specifically, I focused on how incorporating knowledge-aware techniques could improve the performance of these tasks, as well as their interpretability/explainability, and generalizability. By leveraging external knowledge sources, I aimed to develop deep models that could better understand and process language in a contextually aware manner, while adopting a more interpretable and generalizable approach.

**University of Kentucky**

M.A., Linguistics

Aug 2012 – May 2014

**University of Tehran**

B.A., English

Sep 2007 – Jul 2011

**Amirkabir University of Technology**

B.Sc., Physics

Sep 2001 – Jul 2004

**Licenses & Certifications**

The Data Scientist’s Toolbox, R Programming, Algorithmic Toolbox, Machine Learning Foundations: A Case Study Approach, The Unix Workbench (Coursera)

Neural Networks and Deep Learning, Natural Language Processing with Classification and Vector Spaces, Natural Language Processing with Probabilistic Models, Natural Language Processing with Sequence Models (DeepLearning.AI)

How Google does Machine Learning (Google)

Introduction to Artificial Intelligence (IBM)

**Skills**

Python • Mathematics (linear algebra, calculus, statistics, probabilities) • Optimization • Machine Learning • Deep Learning • MLflow • PyTorch • Tensorflow • HuggingFace • Generative AI • Semantic Search • Scikit-Learn • Google Cloud Platform (GCP) • APIs • Version Control • Optimization • Information Retrieval • Knowledge Graphs