Reza Nouralizadeh Ganji

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Education

Master of *Artificial Intelligence* 2020 – 2023
K. N. T. University of Technology Tehran, Iran

- ***Notable Courses:*** Natural Language Processing, Neural Networks, Recommender Systems, Information Retrieval, Evolutionary Computation
- ***Thesis:*** Sentiment Analysis of Short and Incomplete Text using Transformers and Attention Mechanism; under supervision of *Dr. Chitra Dadkhah*
- ***Thesis Grade:*** (20/20 – 4/4)
- ***GPA:*** (18.32/20 – 3.88/4)

Bachelor of *Computer (Software) Engineering* 2017 – 2020
Shomal University Amol, Iran

- ***Notable Courses:*** Machine Learning, Artificial Intelligence, Algorithm Design, Data Structures, Formal Languages and Automata Theory, Engineering Probability and Statistics
- ***Thesis:*** A machine learning-based model for spam detection on mobile phone short message service (SMS); under supervision of *Dr. Hamidreza Koohi*
- ***Thesis Grade:*** (20/20 – 4/4)
- ***GPA:*** (17.61/20 – 3.44/4)

Publications

Sentiment Analysis of Short and Incomplete Text Submitted
***Ganji, R.N.**, Dadkhah, C., Tohidi, N.* 2025

- Ganji, R.N., Dadkhah, C. and Tohidi, N. (2025). Sentiment Analysis of Short and Incomplete Text using Transformers and Attention Mechanism.

PAMR: Persian Abstract Meaning Representation Corpus Published
*Tohidi, N., Dadkhah, C., **Ganji, R.N.**, Sadr, E.G., Elmi, H.* 2024

- Tohidi, N., Dadkhah, C., Ganji, R.N., Sadr, E.G. and Elmi, H., 2024. PAMR: Persian Abstract Meaning Representation Corpus. ACM Transactions on Asian and Low-Resource Language Information Processing, 23(3), pp.1-20.

Improving Sentiment Classification for Hotel Recommender System Published
***Ganji, R.N.**, Dadkhah, C., Tohidi, N.* 2023

- Ganji, R.N., Dadkhah, C. and Tohidi, N., 2023. Improving Sentiment Classification for Hotel Recommender System through Deep Learning and Data Balancing. Computación y Sistemas, 27(3), pp.811-825.

Research Experience

AI Researcher — Supervisor: Dr. Chitra Dadkhah K. N. T. University of Technology
Project: Advanced Sentiment Polarity Detection for Short and Incomplete Texts 2022 – 2025

- **Situation:** Investigated the critical challenge of sentiment analysis in short and incomplete texts, such as tweets, where misspellings, grammatical errors, and lack of context cause traditional NLP models to fail.
- **Action:** Architected a novel 3-phase deep learning system for noisy text. It auto-corrects data, uses a RoBERTa and autoencoder for denoising, and fuses features from all transformer layers for precise classification.
- **Result:** Achieved SOTA results for my Master's thesis, attaining F1-scores of 89.96% on Sentiment 140 & 76.91% on ACL 14. The system beat baselines by 10% in accuracy, showing superior performance.

AI Researcher — Supervisor: Dr. Chitra Dadkhah K. N. T. University of Technology

Project: Creation and Application of the First Persian AMR Corpus 2021 – 2023

- **Situation:** Persian, a low-resource language, lacks key semantic resources like an AMR corpus. This scarcity hinders research into complex NLP tasks like semantic parsing and text generation.
- **Action:** Contributed to the first Persian AMR corpus, annotating 1,020 sentences by adapting guidelines for unique Persian features. Pioneered data augmentation to generate 888 synthetic sentences from the corpus.
- **Result:** Co-developed and released the first Persian AMR corpus. Its use in data augmentation boosted a sentiment analysis model's F1-score and accuracy by 12%. The research was published in an ACM journal.

AI Researcher — Supervisor: Dr. Chitra Dadkhah K. N. T. University of Technology

Project: Enhancing Hotel RS with Deep Learning and Data Balancing 2021 – 2023

- **Situation:** Sentiment-driven hotel recommenders show bias from imbalanced data (too many positive reviews) and multilingual text, which degrades classification accuracy.
- **Action:** Developed an end-to-end RS. Balanced data with a T5 transformer for augmentation and implemented a cross-lingual XLM-ROBERTa classifier, enhanced with an attention mechanism over all hidden states.
- **Result:** Published in CYS journal, this system achieves an 89% Macro F1-score on TripAdvisor, surpassing En-RFBERT by 5%. Its efficient integrated architecture cuts inference time by over 60% compared to the baseline.

Research Interests

- Natural Language Processing
- Deep Learning
- Machine Learning
- Information Retrieval
- Sentiment Analysis
- Computational Linguistics

Licenses & certifications

Natural Language Processing Specialization Coursera

Younes Bensouda Mourri, Łukasz Kaiser February 2022

- In this four-course specialization, students learn how to construct applications for NLP activities including question answering and sentiment analysis, and how to create translation, summarization, and chatbot tools.
- ***Credential ID:*** LCKQELFDBRYW

Deep Learning Specialization Coursera

Andrew NG, Kian Katanforoosh, Younes Bensouda Mourri December 2021

- The five courses in this specialization educate students how to design, develop, and optimise CNNs, RNNs, LSTMs, and Transformers utilising Dropout, BatchNorm, Xavier/He initialization, and other approaches.
- ***Credential ID:*** K8PGAYP9BUZC

Conferences & Presentations

Neural-based approaches for sentiment analysis February 2022
KNTU University Master's Research Seminar

Applications of Monte Carlo sampling in data mining June 2021
KNTU University Data Mining's Research Seminar

Bio-Inspired algorithms for sentiment analysis May 2021
KNTU University Evolutionary Computation's Research Seminar

How do search engines use machine learning methods? May 2019
Shomal University Artificial Intelligence's Research Seminar

Technical Skills

Programming: Skilled in Python, Familiar with: PHP, HTML, CSS
Deep Learning: Transformers, Attention mechanisms, Recurrent Neural Network (RNN), Long Short Term Memory (LSTM), Gated Recurrent Unit (GRU), Auto Encoders
Machine Learning: Clustering, Decision Tree, Support Vector Machine (SVM), Multi-Layer Perceptron (MLP), Ensemble Models, Logistic Regression
Math/Theory: Linear Algebra, Probability & Statistics, Multivariate Calculus, Optimization Methods
AI Packages: Pytorch, Numpy, Pandas, Matplotlib, WandB, PLotly, Scikit-learn
Languages: Persian (Farsi), English