ROHOLA ZANDIE

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EDUCATION

University of Denver *2017-present*
Ph.D. Candidate in Electrical and Computer Engineering (Expected: May 2022) *Denver, CO*
Major in Natural Language Processing and Machine Learning
Overall GPA: 3.92/4.0

Sharif University of Technology *2012-2015*
M.S. in Artificial Intelligence *Tehran , Iran*
Natural Language Processing
Overall GPA: 16.96/20

Shahid Beheshti University *2007-2012*
B.S. in Computer Software Engineering *Tehran , Iran*
Overall GPA: 15.61/20

RESEARCH EXPERIENCE

University of Denver Jun 2017 - present
Research Assistant in Natural Language Processing and AI *Denver, CO*

- Topical language generation using Latent Dirichlet Allocation (LDA) and Latent Semantic Indexing (LSI) and Transformers. Control different aspects of language generation and simulating the style of given documents
- Empathetic dialog system based on the state of the art deep learning transformer language models. Design a novel approach to use multi-task learning for incorporating emotion and other contextual knowledge to improve language generation and response quality.
- Common sense abduction language generation and inference using large language models and temporal reasoning, contextual filtering, and semantic entailment.
- Augmented goal-oriented conversational agent for interacting with elderly people. Design an improve AIML-based dialog system that is used within a humanoid robot and integrates non-text clues like vision to be able to interact with people more naturally.
- Develop and use iCBT-based (internet-delivered cognitive behavioral therapy) dialog system named Program-R for treating elderly people who suffer from mild depression.
- Develop state of the art text to speech and vocoder models for RyanSpeech corpus

Sharif University of Technology Sep 2012 - Aug 2015
Research Assistant in advanced signal processing *Tehran, Iran*

- Create the biggest temporal corpus for the Persian language containing events and temporal relationships following the TempEval
- Develop Conditional Random Field (CRF) model to recognize events in the text and the temporal relationships between them.
- Develop models to homograph disambiguation using graphical models.

WORK EXPERIENCE

Speechify Inc. Jun 2022 - Current
AI Intern *Denver, CO, USA*

- Research and develop SOTA speech synthesis models based on deep flow models
- Develop Phonemizer based on Espeak and deep learning models
- Develop text Normalizers for speech preprocessing

Technologies: Python, Pytorch, Tensorflow, GCP

DreamFace Technologies Jun 2021 - Aug 2021
Machine learning and NLP Specialist (Internship) *Denver, CO, USA*

- Develop Hybrid Chatbot for Ryan using Blender model and AIML technologies
- Create the largest male speech corpus named RyanSpeech in the domain of conversation with high quality for usage in research
- Develop text to speech models based on RyanSpeech to be used in interaction with elderly people who suffer from Dementia and Alzheimer's disease
- Collaborate with research scientists, development and designing engineers from computer vision, speech, graphics, and game design

Technologies: Python, Pytorch, AWS, Flask

DreamFace Technologies Oct 2020 - Dec 2020
Machine learning and NLP Specialist (Internship) *Denver, CO, USA*

- Design and conduct experiments consisting of the dialog system interacting with elderly patients
- Generate documents, publications, and reports on experiments of developed systems on patients

Technologies: Python, Pytorch, MongoDB, C#

DreamFace Technologies Jun 2020 - Aug 2020
Machine learning and NLP Specialist (Internship) *Denver, CO, USA*

- Develop an empathetic aware dialog system for Ryan using state of the art models in NLP
- Research in systems that interact with people who suffer from dementia and Alzheimer's disease

Technologies: Python, Pytorch, MongoDB, C#

Batis Jul 2012 - May 2016
Software Developer *Tehran*

- Develop a small scale, custom ERP software in .NET framework following service-oriented architecture for small businesses
- Design user interfaces using WCF for web and desktop application

Technologies: C#, WCF

TECHNICAL STRENGTHS

Machine Learning	Deep Neural Networks, Natural Language Processing, Reinforcement Learning, Graphical Models, Gaussian Processes,
Programming Skills	Python, R, MATLAB, Java, C#, C++, PHP
Libraries	Pytorch, TensorFlow, Keras, Gensim, PyMC, Spacy, Celery, Django
Databases	MongoDB, Elasticsearch, Mysql, SQL Server
Version Control	Github, Bitbucket, Gitlab
Tools	Pycharm, IntelliJ IDEA, MS Visual Studio, Netbeans, LaTeX.

SELECTED PUBLICATIONS

See All publications

1. **Zandie, Rohola**, and Mohammad H. Mahoor. "Topical Language Generation Using Transformers." Natural Language Engineering, 2022, pp. 1–23.
2. **Rohola Zandie**, Mohammad Mahoor, "A Multi-head Transformer Architecture for Developing Empathetic Dialog Systems", The Thirty-Third International Flairs Conference. 2020.
3. **Rohola Zandie**, Mohammad H Mahoor, Julia Madsen, Eshrat S Emamian, "RyanSpeech: A Corpus for Conversational Text-to-Speech Synthesis" accepted and presented in the conference of Interspeech 2021.
4. Francesca Dino, **Rohola Zandie**, Hojjat Abdollahi, Sarah Schoeder and Mohammad H. Mahoor, "Delivering Cognitive Behavioral Therapy Using A Conversational SocialRobot" IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS). IEEE, 2019.
5. Hojjat Abdollahi, Mohammad H Mahoor, **Rohola Zandie**, Jarid Sewierski, Sara Qualls, "Artificial emotional intelligence in socially assistive robots for older adults: A pilot study", Published in IEEE Transactions on Affective Computing, 2022.
6. **Rohola Zandie**, Diwanshu Shekar, and Mohammad H. Mahoor, "CoGen: Abductive Commonsense Language Generation" Submitted to International Conference on Artificial Intelligence and Applications (AI 2022), 2022.
7. **R. Zandie**, M. Ershad, G. Ghassem-Sani, "Event and Event Relation Extraction in Persian Texts", Accepted in 21th National Iranian Conference on Computer science" 2016.

TEACHING EXPERIENCE

University of Denver, Denver, CO
T.A. Applied MATLAB programming — Spring 2018

University of Denver, Denver, CO
T.A. Advanced Digital Design — Fall 2019

University of Denver, Denver, CO
T.A. Advanced Microprocessor — Fall 2019

Sharif University of Technology
T.A. of Advanced Digital Signal Processing — Fall 2014

HONORS AND AWARDS

University of Denver Dissertation Fellowship Award 2022
Bahramisharif Scholarship for Engineering Graduate Studies, University of Denver 2019
Ranked 10th in the Iranian nation-wide MS entrance in Artificial Intelligence.....2015
Ranked 5th among 70 computer engineering students in Bachelor's degree, based on GPA.....2013
Ranked in the top 1% of the Bachelor's degree participants in the national entrance exam.....2007

REFERENCES

Dr. Mohammad H. Mahoor
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· Associate professor/Electrical & Computer Engineering department/University of Denver

Dr. Chadd W. Clary
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· Assistant professor/Mechanical & Materials Engineering/University of Denver
Dr. Pooran Negi
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· Applied Scientist/Amazon