Ali Ranjbari

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Education

School of Electrical and Computer Engineering, University of Tehran — *Tehran, Iran*

B.Sc. In Computer Engineering(Software Engineering Major) — *Sep. 2019 - Aug. 2024*

- **Cum. GPA: 17.13/20 (3.65/4)**, Faculty Average: 15.1/20 (3.02/4)

Shahid Ezheie 2 High School — *Tehran, Iran*

Diploma In Mathematics And Physics — *2016 - 2019*

- **GPA: 19.29/20**
- As a part of the National Organization for Development of Exceptional Talents (NODET)

Research Interests

- Natural Language Processing
- Artificial Intelligence
- Machine Learning

Publications

Bias mitigation in Persian offensive language detection — *In Preparation*

Azadeh Shakery, Ali Humayouni, Emad kebriaei, Ali Ranjbari

In this paper, we employ a novel approach to mitigate bias in Persian language models, particularly ParsBert. We utilize reweighting techniques to address bias, and modify the loss function accordingly. Additionally, we leverage LMI (Lexical Mutual Information) score for word ranking, and evaluate bias using ROC (Receiver Operating Characteristic) analysis and AUC (Area Under the Curve) metrics.

Experience

University Of Tehran (Intelligent Information System Laboratory) — *Tehran, Iran*

Research Assistant — *Jun. 2023 - Present*

- Under the supervision of Professor **Azadeh Shakery**
- Researching applying different methods of bias mitigation in Persian offensive language detection

Sharif University of Technology (Speech and Language Processing Laboratory) — *Tehran, Iran*

Research Assistant — *May. 2023 - Present*

- Under the supervision of Professor **Hossein Sameti**
- Optimizing various language models, including BERT and MD5, through fine-tuning for tasks like sentiment analysis
- Developing a comprehensive voice-to-voice chatbot system called DANA, which includes an accounting and packaging system for online payments. The system utilizes ChatGPT for AI functionality, along with a TextToSpeech model (ARIANA) and a SpeechToText model (NEVISA). The backend framework employed is Django, and the database of choice is Postgresql. Docker is utilized for efficient containerization during the development process.

Vira Afzar Adan — *Tehran, Iran*

Summer Internship — *Aug. 2022 - Oct. 2022*

- Under the supervision of Professor **Heshaam Faili**
- Working on a summer internship project, I focused on utilizing the Transformers library and the ParsBERT model. The objective was to develop an application that calculates the probability of specific words appearing in masked positions within a given sentence. To achieve this, I researched natural language processing (NLP) and BERT models, while also studying PyTorch and the Transformers library. Throughout the project, I prioritized optimizing the application's efficiency and minimizing processing time.

University Of Tehran — *Tehran, Iran*

Teaching Assistant — *Oct. 2021 - Jan. 2022*

- Professor: **Mahmoud Reza Hashemi**
- Course: Introduction to Computing Systems and Programming
- Teaching three distinct classes on basic programming in C. The classes cover programming fundamentals, including logic, data types, control structures, functions, and more. Through interactive lessons, exercises, and projects, students gain a solid understanding of C programming and the ability to develop basic programs.

Honors & Awards

2019 **Ranked in the top 1%,** National Organization of Educational Testing (NOET) *Tehran, Iran*
2016 **3rd place in the Technology section,** Kharazmi Youth Festival *Isfahan, Iran*
2010 **Silver Medal,** Isfahan Province Taekwondo Championship *Isfahan, Iran*

Academic Project Highlights

Neural Network Implementation *Neural Network and Deep Learning*
Implementating models of research papers *Python, Pytorch, Tensorflow*
Implementing over 10 research papers with PyTorch across various contexts, including CNNs, RNNs, Transformers, Transfer Learning and ...

Movie Type Detection *Artificial Intelligence*
An Movie Genre Classifier With Decision Tree *Python, Scikit-Learn, TensorFlow*
Classifying movies and TV shows genre using Decision Tree model and random Forrest

Baloot Online shopping site *Internet Engineering*
An all-inclusive online shopping platform *Java, Spring Boot, React, Docker, MySQL*
A robust website was developed, utilizing Java Spring Boot for the backend and Node.js React for the frontend and MySQL database for the Database. The implementation incorporates various security technologies, alongside Docker and Git, to ensure a secure and reliable platform.

XV6 Kernel *Operating System*
XV6 Kernel with additional features *C and C++*
Improving and adding new features to xv6 kernel like new system calls, synchronization, scheduling and ...

Sudoku Solver *Artificial Intelligence*
Solving Sudoku game using Generic algorithm *Python, Matplotlib*
The Sudoku game is tackled using a genetic algorithm, harnessing its capacity to optimize solutions. The algorithm initially initializes the puzzle with random numbers and progressively enhances them by generating offspring and introducing mutations.

Licenses

Mar. 2023 **Machine Learning,** DeepLearning.ai *Coursera.org*
Oct. 2022 **Natural Language Processing with Attention Models,** DeepLearning.ai *Coursera.org*
Sep. 2022 **Natural Language Processing with Sequence Models,** DeepLearning.ai *Coursera.org*

Skills

Programming Languages Python, JAVA, C++, C, Node.js
Data Science Pandas, NumPy, Pytorch, Tensorflow, Scikit-Learn
Front-end React, HTML5, CSS
Back-end Django, Fastapi, REST API, Postgre SQL
DevOps Docker, Docker Compose

Languages

Persian Native
English Fluent (TOEFL score 93)

Selected Course Scores

Artificial Intelligence, 19/20(4/4)
Neural Networks and Deep Learning, 17.9/20(4/4)
Advance Programming, 17.79/20(4/4)
Algorithm Design, 17/20 (4/4)
Data Structures, 19.2/20(4/4)
Internet Engineering, 18.7/20 (4/4)
Database Design, 17.9/20(4/4)
Engineering Probability and Statistics, 14.5/20 (3/4)