AmirAli Kaboli | Curriculum Vitae

Amirkabir University of Technology - Department of Mathematics and Computer Science

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EDUCATION

- **Bachelor of Science** Sep 2017-Mar 2022
  Amirkabir University of Technology (Ranked 2nd in Iran according to QS Ranking) *Tehran, Iran*
  - Computer Science
    - GPA: 17.99/20 (3.87/4)
    - Thesis: Intent Detection in Conversational Recommender Systems (Grade: 20/20 (A^+))

RESEARCH INTERESTS

- Natural Language Processing
- Vision and Language
- Healthcare
- Social Media Analysis
- Machine Learning
- Information Retrieval

PUBLICATIONS

- A. Kaboli, M. Akbari, "Comparative study of Intent Detection and Slot Filling joint models on multi-domains datasets", to be submitted, 2022 (In Preparation)

RESEARCH EXPERIENCE

- Research Assistant Jan 2021-Present
  Amirkabir University of Technology *Tehran, Iran*
  - Under supervision of Dr. Mohammad Akbari
  - Intent Detection in Conversational Recommender Systems
    - Used MultiWOZ dataset
    - Implemented and examined methods of Stack-Propgation, Co-Interactive transformer, Bi-model with decoder, and Joint BERT papers on my dataset
    - Achieved improvements by building a two steps method by combining a binary classification using Fasttext for non-intent utterances and Bi-model with decoder for intent classes
- Github Contributor Feb 2022
  MultiWOZ Dataset
  - Rewritten and made Python2 legacy codes compatible with Python3

HONORS & AWARDS

- Ranked 2nd in Computer Science, among 64 students, Amirkabir University of Technology, Tehran, Iran
- Winner of the Sparkling Talent Quota from Talented Students Office of Amirkabir University of Technology
- Ranked 4th in ACM ICPC Selection Contest 2019, among more than 20 teams in Amirkabir University of Technology
- Ranked within the top 1% in the National Entrance Examination 2017, among more than 148,000 participants

TEACHING EXPERIENCE

- Undergraduate Teaching Assistant
  - Artificial Intelligence — Fall 2020
    - Under supervision of Dr. Saeed Shiry Ghidary
    - Created class assignments
    - Corrected & graded assignments
  - Introduction to Theory of Computation — Fall 2019
    - Under supervision of Dr. Fatemeh Zare Mirakabad
    - Held class for about 10 students
    - Corrected & graded assignments
  - Foundation of Combinatorics — Spring 2019
    - Under supervision of Dr. Saeed Kazem
    - Held class for about 30 students

WORK EXPERIENCE

- Data Scientist — Mar 2021-Sep 2021
  Cafe Bazaar (App store with more than 45M active users) — *Tehran, Iran*

  I have worked on an application recommender system that contains recommendation and ranking stages. I have achieved improvements based on hit-rate and user engagement metrics.

- Machine Learning Engineer — Oct 2019-Feb 2021
  Sotoon - AI Department (Cloud & AI services provider) — *Tehran, Iran*

  My mission was preparing codes and trained models for production as microservices on distributed systems, serving them, and making them time and resources usage efficient.

ACADEMIC PROJECTS

- Persian Poet Detection
  - Used classic methods such as SVM, RandomForest, and AdaBoost
  - Used Fasttext for representations and classification
  - Used Recurrent Neural Networks such as LSTM
  - Implemented a UI demo by Streamlit library
- Persian Language Model
  - Used N-Grams with various smoothing functions
  - Used Recurrent Neural Networks such as LSTM
- Papers Recommender
  - Used SVD factorization as Collaborative Filtering
  - Used Doc2Vec as Content-Based Filtering
  - Implemented a Hybrid method of the above methods
- Disease Detection based on Reviews
  - Used TF-iDF vectorizing plus various methods such as Logistic Regression and Random Forest
  - Implemented a UI demo by Streamlit library
- Twitter Sentiment Analysis
  - Used Count vectorizing plus SVM
- Persian News Classification
  - Implemented both char and word based classification
  - Used TF-iDF vectorizing plus SVM
- Bank's Customers EDA and Classification
  - Made an EDA reports of features and their relations
  - Found the best features using RFE and Grid Search
  - Used Decision Tree for classifying loan customers
- Persian News Retrieval
  - Built inverted index and champion lists
  - Used TF-iDF vectorizing
  - Used Cosine similarity measure to find related documents based on a query
- Sparse Matrix & Vector Multiplication
  - Implemented COO, CSR, ELL, and DIA formats
  - Implemented Multi-threading parallelism
  - Used SIMD for vectorize multiplication
- Captcha Detection
  - Used a method by using PCA plus Random Forest
  - Used Convolutional Neural Networks
- Persian Email Spam Detection
  - Used TF-iDF vectorizing plus Naive Bayes and KNN
- Earthquake Analysis on Spatial Data
  - Used spatial libraries such as GeoPandas and Folium
  - Estimated a location for building a new station with the most coverage
- Houzz Data Scrapper
  - Used Scrapy to implement a spider over houzz.com
- Machine Learning Algorithms
  - Implemented classic algorithms from scratch
- Artificial Intelligence Class Projects
  - Searching algorithms
  - Regression using genetic algorithm
  - Document's image alignment

SKILLS

Programming Languages:	C/C++, Python
Libraries:	Numpy, Pandas, Scikit-Learn, Pytorch, Matplotlib, Seaborn, NLTK, Streamlit, Pyspark
Web Technologies:	HTML, CSS, MySQL, Django
Operating Systems:	Linux, Windows
Miscellaneous:	LaTeX, Jupyter, Git, Bash

COURSES

- Special Topics in Data Mining (M.Sc.) Spring 2021
  - Data Science
  - Grade: A^+
- Data Mining Spring 2021
  - Grade: A^+
- Natural Language Processing (M.Sc.) Fall 2020
  - Grade: A^+
- Special Topics in Computer Science Fall 2020
  - Social Networks Analysis
  - Grade: A^+
- Information Retrieval Spring 2020
  - Grade: pass (pass/fail system due to COVID-19)
- Artificial Intelligence Spring 2019
  - Grade: A^+

ONLINE COURSES

- Machine Learning
- Natural Language Processing with Deep Learning
  - In Progress
- Deep Learning Specialization
  - In Progress
- Advanced Python Programming, project based

EXAM SCORES

- TOEFL iBT: 88 (R: 24, L: 20, S: 20, W: 24)
- GRE General: 306 (Q: 167, V: 139, W: 3.0)

References, Further information, and Proofs are available upon Request