Sina Mahdipour Saravani

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FIELDS OF INTEREST

- Neural Language Representation, Interpretability in NLP, Commonsense Reasoning, Language Grounding, Controlled Generation
- Natural Language Processing, Deep Learning and Machine Learning for NLP

EDUCATION

Colorado State University, Fort Collins, United States

- M.S., Computer Science, In Progress 2020 - 2022
  - ◇ Cumulative Grade Average: **4.0/4.0**
  - ◇ Thesis: *An Investigation into the Efficacy of Vector of Locally Aggregated Descriptors (VLAD) to Neural Architectures for Natural Language Processing (NLP)*

Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran

- B.Sc., Computer Systems Architecture 2014 - 2019
  - ◇ Cumulative Grade Average: **16.61/20.0**
  - ◇ Thesis: *Implementation of FPGA Accelerators for Convolutional and Pooling Layers of a Convolutional Neural Network (CNN)*

PUBLICATIONS & MANUSCRIPTS

- Sina Mahdipour Saravani, Ritwik Banerjee, and Indrakshi Ray. 2021. An Investigation into the Contribution of Locally Aggregated Descriptors to Figurative Language Identification. In *Proceedings of the EMNLP Workshop on Insights from Negative Results in NLP*. ACL.
- Sina Mahdipour Saravani, Indrajit Ray, and Indrakshi Ray. 2021. Automated Identification of Social Media Bots using Deepfake Text Detection. In *Proceedings of the International Conference on Information Systems Security (ICISS)*. Springer.
- PI: Indrakshi Ray, Co-authors: Sina Mahdipour Saravani, and Hossein Shirazi. 2021. Grant Proposal: Automated Generation of NGAC Policies from Natural Languagae Documents. To be submitted to *National Institute of Standards and Technology (NIST)*.

RESEARCH & WORK EXPERIENCES

- **Research Assistant, Colorado State University, USA** 2020 - Present
  - ⋆ *Supervisors:* **Dr. Indrakshi Ray, Dr. Ritwik Banerjee, Dr. Nikhil Krishnaswamy**
  - ◇ **Machine Translation for Similar Low-Resource Language Pairs with Loan Words**
    Currently studying the potential benefits of incorporating loan words, both as a knowledge base and as insights to attention-based architecture design, for automated translation between similar language pairs.
  - ◇ **An Investigation into the Contribution of VLAD to Figurative Language Identification**
    Investigated the application and effectiveness of vector of locally aggregated descriptors on top of Transformer-based language representation layers. Studied sarcasm detection in Twitter as a use case (Published at EMNLP Workshop).
  - ◇ **Deepfake Text Detection for Social Media Bot Identification**
    Implemented Transformer-based models to detect bot-generated text on a deepfake dataset resulting in performance improvements by using domain-specific pre-trained models (Published at ICISS).
  - ◇ **Claim/Counterclaim Pair detection in YouTube Comments**
    Currently designing a framework to extract claims and counterclaims from YouTube video comments using a pipeline of claim detection, stance detection, and NLI.
  - ◇ **Extracting Access Control Policies from Natural Language Documents**
    Currently studying a semantic role labeling approach for extracting access control policies and translating them to NGAC relations (Grant proposal under preparation).
- **Graduate Assistant, University of Nevada, Las Vegas, USA** 2019 - 2020
  - ⋆ *Supervisors:* **Dr. Kazem Taghva, Dr. Mingon Kang**
  - ◇ **Named Entity Recognition for Persian**

Implemeted a BiLSTM-CRF architecture for Persian NER.

◇ **Activity Recognition with Wearable Sensor Dataset in Spark Platform**
Implemented scalable activity classification solutions (MLP Network, Logistic Regression, and Decision Tree) using Spark for motion data of the elderly in a room.

- **Research Assistant, Amirkabir University of Technology, Iran** 2018 - 2019
  - ⋆ *Supervisor:* **Dr. Reza Safabakhsh**
  - ◇ **FPGA Accelerators for Convolutional and Pooling Layers of a CNN**
    Researched FPGA accelerators for neural networks and implemented the convolutional and the max pooling functions of CNNs using Xilinx High-Level Synthesis. This project was deployed on a ZYBO SoC board and achieved up to 30 times faster throughput compared to the equivalent software code on a CPU.
- **NLP Developer and Research Assistant, CommentMiner, Iran** 2017 - 2018
  - ⋆ *Supervisor:* **Mr. Ahmad Asadi**
  - ◇ **NLP Microservices for the Persian Language**
    Implemented a set of text processing microservices and a question answering chat bot for the Persian language in CommentMiner start-up. Services included short-text topic classification, profanity detection, NER, and sentiment analysis.

Teaching & Mentoring Experiences

- **Mentor**, Colorado State University 2020 - 2021
  - ◇ Mentored 2 graduate, 4 undergraduate and 2 high school students for research in NLP.
  - ◇ Mentored a 1st generation low income underrepresented student for i-STEM Scholars program.
- **Temporary Teaching Faculty**, University of Nevada, Las Vegas Summer 2020
  - ◇ Computer Science II (CS202) course
- **Teaching Assistant**, University of Nevada, Las Vegas Spring 2020
  - ◇ Data Mining (CS458/658) course, Instructor: Dr. Kazem Taghva
- **Teaching Assistant**, Amirkabir University of Technology (Tehran Polytechnic) Fall 2018
  - ◇ Embedded & Real-Time Systems course, Instructor: Dr. Hamed Farbeh

Professional Services

- Reviewer, **TheWebConf** 2021 & 2022
- Reviewer, **ICDCS** 2021
- Reviewer, **ACISP** 2021
- Reviewer, **IEEE TPS** 2020 & 2021
- Reviewer, **IEEE S&P** 2020
- Industry Relations Officer, **Scientific Association and Olympiad Affairs Office of Computer Engineering Department at Amirkabir University of Technology** 2015

Honors & Awards

- **Fully-funded Research Assistantship**, Colorado State University 2020
- **UNLV Access Grant**, University of Nevada, Las Vegas 2020
- **Fully-funded Graduate Assistantship**, University of Nevada, Las Vegas 2019
- **Top 50 start-ups** in GITEX start-ups competition, UAE (CommentMiner) 2017
- **3rd place** in ElecomStars start-ups competition, Iran (CommentMiner) 2017
- **1st place grant** in Sharif VC Cup start-ups competition, Iran (CommentMiner) 2017
- Ranked top **0.2**% in Nationwide University Entrance Exam in Math. & Physics, Iran 2014

Relevant Skills

- Programming: Python, Java, C/C++, C#
- Tools and Frameworks: PyTorch, Keras, TensorFlow, Hugging Face Transformers, MALLET, Stanford NLP, polyglot, NLTK, OpenMP, CUDA, Docker
- Others: LaTeX, Bash, Vivado and Hardware Design Softwares, Basic Web Programming

References

Available upon request.