Mahshid Alinoori

mahshidaln | mahshid.alinoori@gmail.com | mahshid-alinoori | mahshidaln

Experience

Graduate Research Assistant Sep. 2020 – Present

Audio Processing Techniques Lab at York (APTLY), Toronto, Canada

- Focused on deep learning applications in audio and music domain such as source separation and music style translation
- Currently, working on publishing a paper on the **first audio-based multi-instrument music style translation system** called **Music-STAR**. In this system we leverage an encoder-decoder architecture to perform source separation and content-style disentanglement in the latent space, and alter the instruments using an autoregressive generative model by processing audio at sample level.

Graduate Research Assistant Sep. 2019 – Dec. 2019

SpokenWeb at UBC Okanagan, Kelowna, Canada

- A project dedicated to the discovery and preservation of sonic artifacts
- Worked in a multi-disciplinary team of seven, and studied source separation techniques to remove noise and extract the lead speakers' voice in old digitized sonic artifacts.

Web Developer Jun. 2017 – Mar. 2018

Papion Software Group, Tehran, Iran

- Worked as a back-end developer in a team of ten, developing the food and recipe social media labeled as "Sarashpaz Papion" with more than a million users.
- Developed microservices and RESTful API for authentication and object storage using PHP, Laravel, Docker, and MongoDB.

Education

M.Sc. in Computer Science Jan. 2020 – Present

York University, Toronto, Canada

- **GPA:** 3.92
- **Relevant Coursework:** Deep Learning Applications in Audio & Music, Machine Learning & Pattern Recognition, Data Analytics & Visualization, Machine Learning Theory, Data Mining
- **Supervisor:** Dr. Vassilios Tzerpos

B.Sc. in Computer Engineering Sep. 2013 – Jun. 2018

Amirkabir University of Technology (AUT), Tehran, Iran

- **GPA:** 3.6
- **Relevant Coursework:** Design of Algorithms, Engineering Statistics, Data Structures & Algorithms, Principles of Database Design, Signals & Systems
- **Thesis:** Computation of Elementary Flux Modes in Metabolic Networks using HW/SW Co-design
- **Supervisor:** Dr. Morteza SahebZamani

Projects

Separation-Translation Pipeline for Audio-based Music Style Translation | *Python, PyTorch,*

- Created a pipeline of source separation and single-instrument translation using the SOTA source separation and music translation models to account for audio-based mixture-to-mixture translation.

Single-instrument Music Style Translation | *Python, PyTorch,*

- Extended the supported instruments by the Universal Translation Network through training WaveNet decoders on flute, vibraphone, and string instruments' audio files.

Hit Song Predictions based on Audio Features | *Python, PyTorch, JavaScript, React*

- Worked in a team of three, implementing a classification model using a deep feedforward neural network for hit song detection based on low-level and high-level audio features and got improved results compared to previous studies.

Implementation & Evaluation of Federated Learning Methods | *Python, PyTorch, MATLAB*

- Worked in a team of two, implementing and simulating the federated learning approach in Q-Learning, Soft-SVM and MobileNetV2 architecure, and examined their behavior under a variety of circumstances.

Melody Generation & Manipulation Using Hidden Markov Model | *Python, Max/MSP, Arduino*

- Implemented a generative system that takes a music piece as the input and outputs a novel sequence of notes as the melody with the same time and key signature of the input using HMM and Baum-Welch algorithm. The melody is then altered based on the input of the ultrasonic sensor that goes through Arduino Board into a Max/MSP patch.

Skills

Programming: Python, Java, JavaScript, PHP, MATLAB, C/C++
Machine Learning: PyTorch, Keras, scikit-learn
Operating Systems: Linux (Ubuntu), MacOS, Windows
Databases: MySQL, MongoDB, PostgreSQL
Other: Git, Bash, Laravel, Docker, Arduino
Languages: English, Persian, Spanish

Teaching Experience

Graduate Teaching Assistant Jan. 2020 – Present
York University

- Digital Audio (JUCE)
- Computational Thinking (MATLAB, Arduino)
- Software Development Project (Java, Git)
- Object Oriented Programming (Java)
- Programming For Mobile Computing (Java, Android Studio)

Lab Instructor Sep. 2019 – Dec. 2019
UBC Okanagan

- Physical Computing (Arduino)

Undergraduate Teaching Assistant Sep. 2016 – Dec. 2016
Amirkabir University of Technology

- Data Structures & Algorithms (C++)
- Digital Design Automation (VHDL)
- Research Method & Report Writing

Volunteer Work

President of Student Scientific Chapter Jan. 2017 – Apr. 2017
Department of Computer Engineering, AUT

- Leading a team of five in charge of organizing and holding events, workshops and competitions such as 9th Amirkabir Linux Festival and 4th Amirkabir Programming League(APL)

Honors & Awards

York University Graduate Fellowship 2020 – 2021
Lassonde School of Engineering, York University

Graduate Dean's Entrance Scholarship 2019
Faculty of Creative & Critical Studies, UBC Okanagan

Ranked 1st among Undergraduate Hardware Students 2015 – 2018
Department of Computer Engineering, AUT