

**Mehdi Ashena**

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## Education

### **Shahid Beheshti University, Tehran, Iran**

M.Sc. in Electrical Engineering - Digital Electronic Systems

Fall 2021 - Summer 2024

Thesis Title: *Automatic Recognition of Iranian DASTGAHs by Machine Learning Algorithms*

Supervisor: Prof. Reza Ghaderi

#### **Thesis Description:**

This research focuses on the classification of Iranian Traditional Music modes (*DASTGAHs*) using machine learning algorithms. The study introduces the use of Error-Correcting Output Codes (ECOC) combined with a Multilayer Perceptron (MLP) network for the first time in this domain. The MLP-ECOC model achieved an accuracy of 96.32%, outperforming other models such as CNNs, RBF networks, LSTMs, and RNNs.

### **Islamic Azad University, Zarghan branch, Iran**

B.Sc. in Electrical Engineering - Electronics

Fall 2017 - Summer 2021

GPA: 3.2/4.0

Final Project Title: *Analysis of Prediction for Heart Diseases Using Intelligent Algorithms*

Supervisor: Prof. Soltani Sarvestani

#### **Final Project Description:**

The Research investigates the application of various intelligent algorithms for heart disease prediction, addressing challenges in accurate diagnosis within healthcare. Using algorithms such as K-Nearest Neighbors (KNN), Support Vector Machines (SVM), Multilayer Perceptron (MLP), and Naive Bayes, the model achieved an accuracy of 92% in predicting heart disease based on medical data.

## Publications

M. Ashena, R. Ghaderi, “**Classification (Type Identification) Of Iranian Traditional Music with Combination of Simple Networks**” *Journal of New Music Research*, 2024, Under Review.

M. Ashena, R. Ghaderi, “**Dimensionality Reduction and Neural Networks for Music Information Retrieval: A Case Study of Iranian Traditional Music**”, *in Preparation*

## Research Interests

- Artificial Intelligence
- Neural Networks
- Deep Learning
- Generative Ai
- Reinforcement learning
- Pattern Recognition
- Signal Processing
- Music Technology
- Music Information Retrieval
- Sound and Music Computing
- Music Perception and Cognition
- Computational Musicology
- Programming Languages and Software Engineering

## Awards and Honors

<b>First Prize in Music Performance</b> (Second Consecutive Year), Royesh Festival, Shahid Beheshti University, Tehran, Iran	2023
<b>Certificate of Appreciation</b> , Fars Symphony Orchestra, Fars, Iran	2023
<b>First Prize in Music Performance</b> , Royesh Festival, Shahid Beheshti University, Tehran, Iran	2022
<b>Best Department Manager</b> of all the Inform/Legrand Holding Iran, Iran	2018
<b>Employee of the Year</b> , Rasana Pardazesh Co., Shiraz, Iran	2018
<b>Certificate of Appreciation</b> by President of Medis Holding Co., Shiraz, Iran	2018
<b>Certificate of Appreciation</b> by Technician President of Shiraz University of Medical Science, Shiraz, Iran	2017
<b>Certificate of Appreciation</b> by President of Fars Technical and Vocational Training Organization ,Shiraz, Iran	2015

## Skills

Programming Languages: Flash, Visual Basic Studio, MATLAB, Python, MaxMSP  
✓ Python Notable Proficiencies: TensorFlow, librosa, PyTorch, scikit-learn, SciPy, Keras  
Applications: Adobe, Microsoft Office, COMOSOL  
Operating Systems: Windows, macOS, LINUX

## Selected Teaching Experiences

Santour (Persian Musical Instrument) Instructor	2016 - Present
Rhythm, Theory Instructor	2021 - Present
Teaching Assistant with the Course of Linear Control Systems	2020
Tutoring Assistant with the Course of Electric Machines II	2020
Teaching Assistant with the Course of Digital Systems I	2019
Teaching Assistant with the Course of Electric Machines I	2019
Teaching Assistant with the Course of Digital Systems I Lab	2019
Teaching Assistant with the Course of an Industrial Electronics Lab	2018
Tutoring Assistant with the Course of an Engineering Mathematics Course	2018
Taught at Workshop of Optimal Selection of UPS for Data Center (for over 20 Organizations), Iran	2018
Taught the Applications of Solar Energy for Compact Use at Fars Technical and Vocational Training Organization Shiraz, Iran	2015

Taught UPS Preventive Maintenance Course at Communications Regulatory Authority (CRA) of Fars, Iran 2015

## **Presentations**

Presented at the Conference of Optimized and Reliable data Center Powering Solutions, Shiraz Municipality  
Shiraz, Iran 2016

Presented at the Conference of UPS Applications in Hospitals, Shiraz University of Medical Science, Shiraz, Iran  
2017

## **Selected Courses and Grades**

- Industrial Electronics Lab 4/4
- Electronics I Lab 4/4
- Digital Systems I Lab 4/4
- Digital Systems I 4/4
- Engineering Mathematics 4/4
- Electric Machines I /II 4/4
- Digital Signal Processing 4/4
- Linear Control Systems 4/4
- CMOS Circuit Design 4/4

## **Work Experiences**

**Electro Pardis Co.**  
Research and Development Manager Feb 2023 - Present

**Honar Shahr Aftab Educational Center**  
Music Instructor July 2020 - Present

**Faraz Music Institute**  
Music Instructor Dec 2019 - Present

**Delavaz Music Institute**  
Music Instructor Oct 2016 - Present

**Rasana Pardazesh Co.**  
Research and Development Manager Jan 2016 - May 2019

**Rasana Pardazesh Co.**  
Department Manager May 2017 - May 2019

**Rasana Pardazesh Co.**  
Marketing Manager Mar 2015 - May 2017

**Rasana Pardazesh Co.**  
Installation and Repair Technician Aug 2013 - Mar 2015

## **Selected Professional Experiences**

Music Instructor in more than 5 Music Schools and Music Institutes Shiraz, Iran 2016-Present

Cooperated the Production line of UPS (Uninterruptible Power Supply) and Stabilizers with Mega Modavem Co.  
(Inform/Legrand Official Head Office in Iran) Tehran, Iran 2019

Consulted and Designed UPS and Battery Room for MRI room at Fasa University of Medical Science	Fasa, Iran 2019
Consulted and Designed Diesel Generator Room at Lar University of Medical Science	Lar, Iran 2019
Consultant and Supervisor at Fars ICT Guild Organization	Shiraz, Iran 2017 - 2019
Supervisor of Data Server Room Building in Medis Holding Co.	Shiraz, Iran 2018 - 2019
Designed Data Server Room in Medis Holding Co. (Including Power Room, Monitoring Room and Ups Room)	Shiraz, Iran 2018
Supervisor and Consuler of Electronic Medical Devices and UPS at Yasouj University of Medical Science	Yasouj, Iran 2017
Consulted and Designed UPS and Battery Room at Shiraz University	Shiraz, Iran 2015
Setup more than 1000 UPSs in Hospitals, Industrial Centers, Datacenters, Offices, and Server Rooms across the country	2013 - 2015
Serviced more than 2000 UPSs in Hospitals, Industrial Centers, Data centers, Offices, Server Rooms across the country	2013 - 2015
Repaired More than 100 UPSs in Hospitals, Industrial Centers, Data centers, Offices, Server Rooms across the country	2013 - 2015

## Selected Concerts and Performances

Performed with Fars Symphony Orchestra as a Santour Soloist	Shiraz, Iran, 2022
Performed with Shahre Raz Ensemble as a Santour Soloist (Composer: Sepehr Pirasteh)	Shiraz, Iran 2018
Performed with Sarv Ensemble as a Composer and a Santour Player	Shiraz, Iran 2017
Performed with Shahre Raz Ensemble as a Santour Soloist	Shiraz, Iran 2017
Performed with String Quartet as a Santour Soloist (Composer: Sepehr Pirasteh )	Shiraz, Iran 2016
Performed with Trio Group as a Composer and a Santour Player	Shiraz, Iran 2016
Performed Duet as a Santour Player	Shiraz, Iran 2016

## Other Activities

Visited the New Product line of UPS Models (PF=1) at the Inform Co. (as a Part of Legrand group)	Istanbul, Turkey 2019
Visited the Saba Battery Co. (Biggest Battery Manufacturing Company in Iran)	Tehran, Iran 2019
Visited the OZDISAN Group (the Biggest Distributary of Component in the Middle East)	Istanbul, Turkey 2018

Attended in the Workshop of UPS Troubleshooting at the Inform Co.

Istanbul, Turkey 2017

Visited the Sazand Co. (Manufacturer and Supplier of Power and Control Systems)

Tehran. Iran 2019

## **Selected online courses**

- Audio Signal Processing for Music Applications (Coursera, Xavier Serra)
- Coding with Mosh (Udemy, Moshfegh Hamedani)
- PyTorch for Deep Learning with Python Bootcamp (Udemy)
- Deep Learning A-Z: Hands-On Artificial Neural Networks (edX)
- Introduction to Music Technology (edX, AdelaideX)
- Programming Max: Structuring Interactive Software for Digital Arts I (Kadenze)
- Computing in Python I: Fundamentals and Procedural Programming (edX, Georgia Institute of Technology)
- Introduction to Python Programming (edX)

## **Languages**

Persian: Native

English: Fluent

- TOFEL iBT : 96 (Reading: 20 Listening:30 Speaking 24 Writing:22)

French: Elementary

## **References**

### **From Academia**

Available upon request

### **From Industry**

Available upon request