Sajjad P. Savoji

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EDUCATION

University of Tehran
Bachelor of Electrical Engineering , Major in Communication Systems , Minor in Computer Engineering

- EE Cumulative GPA: 17.36 / 20
- CE Cumulative GPA: 18.13 / 20

NODET Allameh Helli 8 Branch
Diploma in Mathematics and Physics
National Organization for Development of Exceptional Talents AKA "NODET"

- Cumulative GPA: 19.73 / 20

AWARDS AND ACHIEVEMENTS

- 3^{rd}place in Iran and 93^{th} place worldwide in IEEExtreme 11.0 from 2121 teams. participated as team "PointBlank".
- 8^{th} place in Iran and 733^{th} place worldwide in IEEExtreme 12.0 from 3358 teams. participated individually as team "SAVOJI".
- 2016 gold medalist and 2017 silver medalist basketball player in University of Tehran sport competition festival.
- Gold medalist in city of Tehran 2014 student sport competition.

EXPERIENCE

Vice Chair of IEEE University of Tehran student branch
April 2018 - April 2019

- The Student Branch Vice-Chair is the junior Executive Officer. He/she should help the Branch Chair with the workload, oversee some of the subcommittees, and manage some of the activities throughout the semester.

Summer Internship in Secure Communication Lab **University of Tehran**
June - September 2019

- Secure Communication Lab in UofT is a leading lab in which real-life problems are addressed using AI/Deep Learning techniques. Through this reasearch internship I developed several Artificial Neural Networks such as YOLO2 , LSTM , CNN and MLP. My task was to build a translator from Iranian Sign Language to written words.

IEEE DSWS Mentorship **University of Tehran**
January 2020

- DSWS(Data Science Winter School) is an evet held at UTSB in which participants gain general knowledge regarding Statistical Inference, ML, DeepLearning, etc. I contributed both as an instructor and a hands-on designer.

IEEExtreme 12.0 and 13.0 ambassador **International volunteer work**

April 2018 - November 2019

- IEEEXtreme is an annual hackathon and competitive programming challenge in which teams of IEEE Student members compete in a 24-hour time span against each other to solve a set of programming problems.
- An ambassador's job is to encourage students to participate the challenge.

IEEEmadC ambassador **International volunteer work**

April 2018 - November 2019

- IEEEmadC (Mobile Applications Development Contest) is an international contest organized by volunteers for IEEE student members across the globe. The main goal is to educate and encourage students to pursue their future career as mobile application developers.
- An ambassador's job is to encourage students to participate the challenge.

Educational Experience

- Engineering Probability and Statistics TA — Spring 2019, Fall 2019
- Communication Systems I TA — Fall 2019
- Electronics I TA — Spring 2018

SELECTED COURSES

Artificial Intelligence · Pattern Recognition · Digital Communication Systems · Digital Signal Processing · Communication Systems · Linear Algebra · Statistics and Probability · Operating Systems · Advance Programming · Data Structure · Introduction to Computer Systems and Programming · Linear Control Systems · Linear Control Systems Lab · Digital Logic Design Lab · Realtime Digital Processing Lab

KEY SKILLS

Programming Languages

- C++ (Advanced)
- C (Advanced)
- Python (numpy, pandas, sklean, pytorch)
- System Verilog
- HTML5
- Java Script
- CSS
- Bootstrap

Platorms

- Jupyter Notebook and Google Colaboratory
- MATLAB Simulink & toolboxes such as FDA-tool
- Hardware simulators: Modelsim , Quartus
- Circuit simulators: Multisim
- Micro controller simulators: Proteus,Codevision
- LaTeX

Microprocessors

- FPGA
- DSPs
- AVR ATmeg series
- Raspberry Pi 2,3
- Arduino

ACADEMIC PROJECTS

AP Drive (link) *September 2018 - January 2019*

- A File Hosting Service inspired by Drop Box using C++ with a web based GUI
- Allows multi-user synchronization , file sharing as group and individual, file management, upload and download and storage management for root and admin users. All features are accessible both locally and through the Internet.

XV6 development (link) *January 2020*

- This project is based on the XV6 operating system developed in MIT University. Each branch of this project is an adds a feature or improves the original XV6 kernel.
- In the first branch some new features were added to the console and terminal.
- The second branch adds some new system calls to the XV6 kernel.
- In the third branch multiple CPU scheduling algorithms support was added.
- In the fourth branch process synchronization memory barrier was implemented.
- The last branch is about memory and paging of XV6. XV6 does not handle demand paging.We added paging to XV6 then we added different paging algorithms such as LRU, NFU, Clock, FIFO.

Voice Recognition using MLP (link) *April 2019*

- In this project a neural network was trained on the melfrequency coeficients of indivisual's voices to provide an identification systerm based on speech processing.

Face Detection using CNNs (link) *July 2019*

- the goal was to build a Convolutional NN using which the problem proposed by AT&T faces dataset could be solved. To do so, the siamese network alongside with triple-loss cost function were used.

Object Localization (link) *July 2019*

- This project is a simple implementation of YOLO2 network trained on the dataset proposed by kaggle.com to localize and identify different fish.

Humpback Whale Identification (link) *July 2019*

- The goal was to build a Convolutional NN using which the problem proposed by kaggle could be solved. To do so, the siamese network alongside with triple-loss cost function were used.

Transfer Learning for ASL (link) *July 2019*

- This project was a prototype for American Sign Language(ASL) translation, in which few layers of Resnet101 was retrained on the data set provided from kaggle.com.

Smart House *Jun 2018 – August 2018*

- IOT based project tested on a wooden home prototype using mostly Python and Java
- Using a Raspberry Pi as central gateway of sensor communications, home daily activities such as opening doors, powering lights and watering flowers were done automatically.
- Then the Raspberry Pi interacted through HTTPS and MQTT protocols with a simple Android app. As the Raspberry had massive computation capacity, vital warnings could activate edge computing services such as the fire extinguisher.
- All sensory data was stored in thingtalk.ir platform and allowed us to provide user with cloud computing services such as graphs and data analysis

Amplitude Modulations (link) *July 2019*

- In this project several amplitude modulations such as AM , DSB and SSB were simulted in MATLAB.
- In addition to demodulations, the so known syncronization problem that exists in synchronous demodulators were examined.

Frequency Spectrum Analyzer *January 2019 - February 2019*

- A real-time frequency spectrum analyzer using C and AVR ATmeg series.
- Surrounding voice was sampled using AVR's ADC module then using Fast Fourier Transform algorithm, frequency spectrum of voice was shown in an LED array.

Electrical Motor Speed Estimation Using Optocounter *January 2020*

- This project was a part of Electrical Machines Lab course taught at UofT.
- The goal was to build a device to estimate motor's speed using AVR and IR sensor.

More projects are available in my (Git repository)