Parsa Nooralinejad

Dept. of ECE,
University of Tehran, Tehran, Iran
(+98) 939 102 2821
pnaneslamloo@gmail.com

Education

Sept. 2015 – Present **University of Tehran**, *Tehran, Iran*.
Bachelor of Computer Engineering; GPA: A (16.65/20)

Sept. 2011 - May. 2015 **Allameh Helli 3 High school**, *Tehran, Iran*.
Diploma of Mathematics and physics; GPA: A (17.71/20)

Research Interests

- Artificial Intelligence, Deep Learning, Machine Learning, Computer Vision, Natural Language Processing, Data Mining, Reinforcement Learning
- Robotics, Smart devices, Embedded systems
- Data science, Economical data analysis

Research Experience

Jun. 2018 - Present **Research Assistant**, *IPM - Institute for Research in Fundamental Sciences*, Tehran, Iran.
Resulted in a paper in which we designed a hardware accelerator for DNN training.

Jun. 2017 - Mar. 2018 **Research Intern**, *University of Tehran, Machine Learning Lab* , Tehran, Iran.
predict humans' behavior using collected choices in a n-armed bandit problem using DNN.

Publications

Small object detection algorithm for MSCOCO dataset: Cooperating with Dr. Amin Sadeghi and Dr. Mohammad Rastegari, Senior AI/ML Technical Leader at Apple, we are investigating the shortage of accuracy in small object detection and developing an algorithm to increase the accuracy (AP and AR) using Mask-RCNN as baseline algorithm and MSCOCO dataset. The paper is under review in **ECCV 2020** conference.

TaxoNN: A Light-Weight Accelerator for DNN Training: Recently, use of Artificial Neural Networks in Artificial Intelligence algorithm is increasing. Researchers and engineers use GPUs or data centers for training them. However, computational intensity of DNN training will occupy so much resource in data centers. Therefore, a light-weight and low power hardware accelerator for DNN training is a vital need. It is a synthesizable RTL level design, implemented in verilog HDL, that has low power and area consumption. It can perform both inference and training process of DNN. Dynamicity of our design allows to use each PE as a dense, pooling, or convolutional layer. This paper is **accepted** in **ISCAS 2020** conference.

Notable Projects

Topic Labeling: As my bachelor thesis, I work with Dr. Hesham Faili, head of NLP lab at the University of Tehran. In this project, we designed and implemented an A.I. agent that takes an essay, paper, etc, as input and outputs a proper label for it.

Collision avoidance robot: Using AVR microcontroller and ultra sonic sensors, we designed a system and mount it on a RC car. The car stops when approaching to an obstacle and moves in the opposite direction if an object moves toward it.

Dynamic neural network implementation: we implemented neural network with training capability and ability of variable architecture. This project was implemented and programmed with python and tested with MNIST dataset.

Smart Routing algorithm on a network: Given a network architecture in mininet (a network simulation environment), the algorithm should be able to route packets from any node to any other in the fastest possible path. To achieve this, we used graph theory to route the packets from its source towards its destination through the network. The projects challenge was that the network was dynamic so the algorithm should enroute packets dynamically.

Khane be Doosh: As internet engineering project, advised by Dr. Ramtin Khosravi, we designed a website to act as a real estate agency. In this website, you could search houses and apartments using different filters(e.g. price, area, for rent or for sale, etc.). Backend of this project was implemented with Node.js and java and we used bootstrap and react for frontend. UI of this project was designed as a responsive page application and used REST API architecture.

BoxBoy : BoxBoy is a game which we implemented during our advance programming course. We implemented this project using C++ and we used SDL library for graphics.

Atalk Compiler : Atalk is an actor-base language that our compiler project was to implement its compiler. Its lexer and parser is implemented in java. Our project compiled Atalk to MIPS assembly.

RL agent for Ping Pong: During my high school, my friends and I, implemented a 3D Ping pong game. As the users opponent, we designed a reinforcement learning agent that improved as different users played with it.

Body gesture detection program using PC webcam: Using OpenCV library, we designed a program in which you stand in front of your webcam and the program detects what is your gesture. Although it was not as accurate as the state-of-the-art of the time (Kinect), but it was accurate enough that we mount it on our Ping pong game. I did this project in high school too.

Teaching Experiences

U of Tehran **Teaching assistant of Artificial Intelligence**

U of Tehran **Teaching assistant of Discrete mathematics**

U of Tehran **Teaching assistant of Data structures and algorithms**

Allame helli 3 **Programming tutor, teaching python and django**

Honors

Bronze medal of 24th Iranian National Olympiad in Informatics

2nd of Tehran province in khwarazmi festival (student branch)

Skills

Programming Languages: C, C++, Java, Python, Javascript, MATLAB, R, PHP

Machine Learning: Tensorflow, PyTorch, Numpy, Pandas, scikit-learn, OpenCV

Scientific skills: Algorithm design and implementation, Hardware design and implementation, Machine learning and Artificial Intelligence, Object oriented design, Rich Internet Application design

Operating system: Windows , Linux , Mac OSX

Other programming skills: HTML, CSS, jQuery, ReactJS, Django, SQL, UML Design, Tex, git, OpenGL, raspberry pi, arduino, verilog, FPGA, OpenSSL

Softwares

Microsoft Visual Studio

Modelsim, Quartus, ISE

CodeVision AVR, Proteus

IntelliJ, PyCharm, Webstorm

Languages

Persian : Native speaker

English : Fluent

Related Courses

Advanced Programming

Data Structures

Algorithm Design

Engineering probability and Statistics

Artificial Intelligence

Online Courses

Stanford CS231n - Winter 2016

Stanford CS224d - Winter 2016

Stanford CS229 - 2008

References

Dr. Mohammad Rastegari - mohammadr@allenai.org

Dr. Mohammad Amin sadeghi - asadeghi@ut.ac.ir

Dr. Fathiyeh Faghih - f.faghih@ut.ac.ir