Sepand Ali Madad Soltani

Education

K.N. Toosi University of Technology   Tehran, Iran
Bachelor of Science in Electrical Engineering   **Anticipated** in February 2023
Concentration: **Electronics Engineering**
GPA: 16.26/20   (Last two years: 17.29/20)
GPA 4.0 scale: 3.37 (Last two years: 3.72)

Academic Projects

Classification of Mild Cognitive Impairement(MCI) and Alzheimer's disease patients using Deep Neural Network based on fMRI images and EEG signals   Summer 2022 (Ongoing)

- Studied the previous works on this subjects for finding the gap (Still early stages of the project)

Playing a Video game (Tetris) using Deep Reinforcement Learning   Summer 2022 (Ongoing)

- Developed the game from scratch using C++
- Created a custom Python to C++ API for calling to the game from python script using Pybind11 library
- Developed a Deep Q learning agent for training the AI to play the game

The Game of Tetris with a Custom Game Engine Using OpenGL in C++   Spring 2022

- Developed a custom 2D graphics renderer completely from scratch using the [OpenGL](#) graphics API in C++
- Added game functionalities, menus and text rendering capabilities to the engine
- Designed and implemented the game of [Tetris](#) using the said engine in Object Oriented C++

Implementation of Synthesizable A* Search Algorithm in FPGA-VHDL   Spring 2021

- Developed a synthesizable VHDL code for A* algorithm capable of solving any 10x10 mazes
- Developed a python script for generating random mazes
- Simulated and tested the algorithm for solving random mazes using VHDL test bench

Smart Temperature Detection PCB Circuit Design   Summer 2020

- Designed circuit schematic and PCB layout using Altium designer
  (Key components: ATMEGA64 and SIM800C)

Calculating the Magnetic Field Caused by a Spherical Solenoid   Winter 2019

- Derived the formula for the magnetic field caused by a spherical solenoid
- Calculated and graphed the magnetic field on multiple plates
- Integrated the graphs and the calculator in a custom GUI developed using MATLAB App Designer

Skills

- **Software:** C++, Python, VHDL, MATLAB, PSpice, Proteus design suite, Altium Designer, AVR C
- **Hardware:** Arduino, Various wireless communication modules (BLE, RF, GSM, IR and ESP8266)
- **Language:** Persian(Native), English(Fluent), intermediate French(A2)
- **Online Courses and Certificates:** Certificate of MATLAB from Sharif University, Certificate of Altium Designer from K.N. Toosi University of Technology

Work Experience

Razeq Co.   Tehran, Iran
Electronics Engineer Internship   Summer 2021

- Researched the design and development process of a parametric speaker (directional speaker) and examined the feasibility of manufacturing it
- Implemented smart presence detection and remote-control support for the monitor stand in Valiasr Street Museum
- Developed and assembled various hardware for installation in Iran's pavilion in Dubai Expo 2020 (Electric control panel, wiring, lighting and presence detection system)