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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

Prediction of Multiple Cognitive Traits and Performance Based on Resting State EEG by Deep Convolutional Neural Networks — Winter 2022 (Ongoing)

- Cleaned and structured the dirty data provided by the LEMON dataset using python
- Proposed different data structures for training the model
- Attempted multiple CNN and LSTM-CNN models for achieving a low error result using the Keras API (A working model has not been achieved as of yet)

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:** Fluent in Persian and English, intermediate French
- **Online Courses and Certificates:** Certificate of MATLAB from Sharif University, Certificate of Altium Designer from K.N. Toosi University of Technology

Work Experience

ETS, University of Quebec — Montreal, Canada
Remote Research Assistant — Winter 2022 (Ongoing)

- Worked under the supervision of Dr. M. Forouzanfar from the university of ETS, Montreal on the use of artificial intelligence in medicine

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 Iranâ€™s pavilion in Dubai Expo 2020 (Electric control panel, wiring, lighting and presence detection system)