Sara Abbas

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Education:

American University of Beirut, B.E. in Computer and Communication Engineering **2019 - 2023**

- Track in **artificial intelligence**, **software engineering** focus area.
- Relevant modules: Machine Learning, Data Structures & Algorithms, Programming, Computer Networks, Probability & Random Variables, Calculus & Analytical Geometry, Linear Algebra.

Experience:

Programming Tutor | Perla Center | Lebanon: **Jun 2021 – Jul 2021**

- Tutored 6 kids aged 11-13 in **programming** and several **problem solving** practices.
- **Python** programming: basics and fundamentals, coding some math problems.
- Project: handmade oven that works on solar energy and laws of thermodynamics.

Undergrad Research Assistant | Lab of Automated Reasoning at AUB: **Oct 2020 – May 2021**

- Joined the Undergraduate Research Volunteering Program (URVP) to assist in ongoing research projects related to **automated reasoning** for information extraction from Arabic documents under the supervision of Prof. Fadi Zaraket.
- Topics covered: Arabic Cross-Document **NLP** and Diacritic-Based Matching of Arabic Words.

Projects:

Detection of DDoS Attacks on SDNs with the use of Machine Learning **Oct 2021 – Dec 2021**

- Stacked five machine learning models: **SVM**, **DT**, **RF**, **NB**, and **KNN**, into one "smart detection stacked model" using a **stacking classifier** to increase accuracy and performance rates of DDoS attacks detection and mitigation on SDNs.
- Evaluated each model separately and the stacked model using **confusion matrices** and **classification reports**. The stacked model showed higher accuracy and performance rates than the ML models.
- Used **Python, scikit-learn, pandas, numpy, matplotlib.**

File Transfer between Two Hosts **Apr 2021**

- Developed a **network** tool to transfer a file between two hosts through any of the two protocols: **UDP** or **TCP**. Both the average bandwidth and the average receiving rate were calculated.
- Used **Python**, pycharm.

Audio Signals Processing **Apr 2021**

- Designed three tools to perform three different tasks given an **audio signal**: filtering of the audio signal, echo creation, and source separation.
- Tool: **MATLAB**.

Traffic Light Controller **Mar 2021**

- Designed and implemented a simple traffic light controller that consists of five blocks: clock divider block, timer signal block, FSM block, decoder block, and top level block.
- Used **VHDL**, Nexys FPGA Board, Vivado Xilinx.

Arithmetic and Logic Unit **Dec 2020**

- Designed an 8-bit arithmetic and logic unit (ALU) that takes two inputs A and B (two's complement numbers) each of size 8 bits and performs arithmetic, 8-bit comparison, and shift operations.
- Used **VHDL**, modelsim.

Storing Information for an International Company **Jul 2020**

- Designed a CLI that stores and retrieves relative information for an international company (cafe): store info, manager info, and employees' info. The **data structures** implemented: **linear**, **binary search tree**, and **hash tables**.
- Used **C++**, visual studio.

Skills:

- **Programming:** Python, C++, Octave, MATLAB, VHDL, LaTeX, Jupyter.
- **Libraries:** NumPy, Pandas, Scikit-Learn, Matplotlib, TensorFlow, Keras.
- **Languages:** English, Arabic.

Extracurricular Activity:

Women Who Code | International: **2021 – Present**

- Student Volunteer.
- Member at WWCode Data Science and WWCode Python networks.

IEEE and Women in Engineering (WIE) | Beirut, Lebanon: **2020 – Present**

- Member

Nadi Iqraa | Lebanon: **Jul 2018 – Aug 2019**

- Managed a reading club targeting high school female students and hosted several talks with professionals.
- Constructed a reading plan for reading 3 books, where over 800 copies were distributed.
- Issued more than 1000 discount cards to help people afford buying books from Beirut International Book Fair.