

Bashar Karaja

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EDUCATION

American University of Beirut (AUB), Lebanon **Aug 2019 – Present**

Bachelor of Science in Physics

- Double minor in Mathematics and Data Science
- CGPA: 3.51/4.00
- Full scholarship from the Middle East Partnership Initiative (MEPI)

Michigan State University(MSU), US **Aug 2021 – Dec 2021**

Semester abroad as an International Guest Student Program Scholar

- Fully funded by MEPI and the US Department of State
- GPA: 3.75/4.00

EXPERIENCE

Beirut Digital District with [MEPI-TLP](#), Beirut **May 2021 – July 2022**

Start-Up Co-founder

- Developed a new python-based algorithm for [Band Industries](#) company to enhance their mobile application which is designed to help beginner musicians to practice their play on Guitar
- Conducted research on noise and backtracking sound cancellation to improve audio quality produced by electronic devices
- Gained knowledge about signal processing and practical experience in dealing with different types of digital filters such as the kalman filter

HOPE Center for academic facilities, Mount-Lebanon **May 2019 – Jan 2020**

Private Tutor

- Offered private Physics and Mathematics tutoring for middle and high school students

American University of Beirut, Beirut **Mar 2022 – Jul 2022**

Research Intern

- Worked on Photo thermal Displacement Spectroscopy which focuses on the detection of thermal expansion of a sample upon absorption of electromagnetic radiation
- Developed computational methods to predict the effect of these radiation at the Nano level

SAID NGO, Remote **July 2022 – Sep 2022**

Web Developer and Data Analyst

- Worked on constant updating of colorectal cancer news on their website
- Developed a more user friendly version of the NGO's website using React framework
- Participated in gathering and analyzing data about Colon Cancer infection rate with respect to age and region.

ACHIEVEMENTS

- Chosen as one of the two students nominated by AUB to study abroad at MSU (2021)
- Awarded Tomorrow's Leaders Scholarship fully funded by the U.S. Department of State to pursue a Bachelor's degree in Physics (2019)
- Awarded first prize in Perseverance in Raspberry pi Competition in Beirut, Lebanon (2018)

PROJECTS

- **Automated Medical Room** – created a python based automated room that facilitates the daily life of patients with paralysis, with an ability to detect any possible heart attacks in an early stage
- **Space Rocket** – Participated in building a small space rocket that could withstand the standard conditions of Rocket Launching with the help of the Rocketry team at Michigan State University
- **Gravitational waves data analysis** – focused on the effect of mass, spin and distance from Earth on the detection of gravitational waves of binary black hole and black hole-neutron star systems
- **Housing Organizer** – developed using Java Graphical User Interphase (GUI) and Structured Query Language to organize and retrieve student's data in a university's housing department
- **Master Equation in Cryptography**- designed to be a decryption system that uses random probability generators and random walks to decrypt any form of text without the need of knowing the encryption key used.

TRAINING & CERTIFICATIONS

MEPI-TL Workshops, Remote

Jan 2021

- Completed workshops designed to educate us on our rights and obligations as well as how to stand up for them and react appropriately when they are violated

Civic Engagement Certificate in the U.S:

Dec 2021

- Awarded by [FHI360](#) and the U.S. Department of State for volunteering in civic engagement activities that positively contributed to the U.S. society

TECHNICAL SKILLS & CORE QUALIFICATIONS

Languages: Fluent in English and Arabic, beginner in German, French and Japanese.

Technical Skills: Python, C++, R, HTML, SQL, Java, MATLAB, Microsoft Office, LATEX, VPython, Jupyter notebook, LabView, Sigma Plot, MySQL, Tinkercad, Arduino, Raspberry pi

VOLUNTEERING

- Taught physics to students in Lebanese public schools as a part of MMKN's after-school programs for Syrians. (October 2020)
- Volunteered to help AUB Medical Center pharmacy in data entry and organizing donations received for Beirut Blast. (Aug 2020)