

SARAH KHALIFEH

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EDUCATION

American University of Beirut

BE - Computer and Communications Engineering

Beirut, Lebanon

August 2020 - June 2024

- Expected Graduation: June 2024
- Coursework: Introduction to Computation and Programming, Signals and Systems, Communication Systems, Information Theory, Internet Security, Computer Networks, Mobile Networks and Applications, Computer Organization, Data Structures and Algorithms, Design and Analysis of Algorithms, Cloud Computing, Software Engineering

EXPERIENCE

Research Intern

American University of Beirut

Beirut, Lebanon

June 2023 - Present

- Working on a generalization of the lossy channel coding theorem for the distortion-rate function used for data transmission and storage
- Adopting a measure theory, topology and geometric approach to devise a channel coding theorem that is not restricted to Mean-Squared-error distortion

Laboratory Assistant

IEEE Lebanon - Electromagnetics Chamber

Beirut, Lebanon

January 2022 - Present

- Conducting laboratory sessions in three high schools to simulate theoretical concepts related to Magnetism and laws of Magnetism
- Explaining the theory behind electromagnetic concepts and providing help in completing lab reports

SELECTED PROJECTS

AUBCovax

April 2023 - May 2023

- Developed a platform that manages COVID-19 vaccination process.
- Ensured communication with a centralized MySQL database that holds all records
- Adopted Agile CI/CD methodology using git version control and Microsoft Azure deployment
- Used Python Flask For Backend and Kotlin for Frontend

Mobile Chatting Application

April 2022 - November 2022

- Created a peer-to-peer multithreaded chatting application that allows sending audios, videos, pictures, direct messages and files with a custom-made communication protocol using a server in between
- Added application layer security over UDP connection for message sending and ensured file sharing over a separate TCP connection
- Used Ubuntu as an operating system and netem tool to simulate packet loss in the Linux terminal

RISC-V Single Cycle Processor

May 2022 - June 2022

- Used VHDL to implement the control unit and immediate generator for a single-cycle RISC-V processor that implements RV32I instruction-set architecture
- Decoded instructions, extracted pertinent fields and asserted the appropriate control signals in the data path to execute the instruction
- Added an immediate generator that generated the 32-bit sign extended immediate values used in the arithmetic, logic, memory and branch/jump instructions
- Developed a test bench that tests the register file input and corresponding outputs

SKILLS

Programming Languages: C++, Java, Python, Javascript, Html, Kotlin, Matlab, RISC-V assembly

Software Tools: Git, GitHub, Microsoft Azure, Trello, Docker, Microsoft Suites, LaTeX

Software Frameworks: Django, Flask, Agile-Scrum

Operating System: Linux (Ubuntu), iOS, Android

Languages: Fluent in English, French, and Arabic

REFERENCES

Available upon request