Rhea Khoury

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OBJECTIVE

As an engineering student at Imperial College - London, I have had the opportunity to study and work in a multicultural environment, which has helped me appreciate diverse perspectives and hone my functional and behavioural skills. I am interested in pursuing a career in software engineering and believe that my education and internships have provided me with the necessary foundation to be a valuable contributor in this field. I am particularly drawn to companies that value inclusion and diversity, as I believe these values lead to a more innovative and dynamic workplace. I am eager to support the vision and growth of companies that share these values, and am excited to explore opportunities that allow me to do so.

EDUCATION AND HONOURS

Imperial College London – United Kingdom 2020 - Present (expected graduation in June 2024)

Masters in Information and Electronic Engineering on track to graduate with first class honours

Projects Highlights:

CPU Design and verification (Instruction Architecture and Compilers coursework - group work):

Developed a MIPS CPU using System Verilog. I was in charge of designing the ALU and writing testbenches. The code can be found here. Also designed the control and data path of an MU0 CPU and an ARM CPU using Issie software designed by my professor. Challenges were successfully addressed and include inventing new instructions and implementing them, pipelining, adding byte addressing for load/store instructions, adding sub-routines, etc.

Autonomous Mars Rover (Electronics Design Project course – group work)

Designed an autonomous rover to sweep a map while keeping track of obstacles and avoiding them. I was in charge of the control subsystem which consisted of a microcontroller (ESP32). I wrote the microcontroller code in C++ (Arduino) which consisted of integrating all subsystems together and the autonomous code. The full project can be found here.

Coding: Boolean functions represented using trees (Programming)

Wrote a Boolean algebra solver and simplifier in C++ using efficient tree and graph structures. Details can be found here.

FPGA and server design (Information processing – group work)

Wrote C code using Eclipse after instantiating specific hardware blocks to use the FPGA as a controller in our unity developed in unity. Created a server hosted on AWS to communicate with the client and host a real time multiplayer game. Employed socket programming using python.

C Compiler development: (Instruction Architecture and Compilers coursework)

Developed and tested a C compiler in C++ for basic operations and employed object-oriented design. Used Lex and Yacc for the lexer and parser. The code for the design and test-benches can be found here.

Analog Music Synthesizer (Electronics Design Project course – group work)

Researched and came up with the best way to design the Analog Music Synthesizer. Created the circuits for each part of the Synthesizer on LT Spice. I designed the VCF (Voltage Controlled Filter). The circuits were then simulated on LT Spice. Listened to the waves through Matlab. Project was developed fully remotely given COVID19 despite the challenges entailed. We succeeded in delivering a high-end product in a timely manner.

International College – Lebanon 2005-2020

Scientific French Baccalaureate (specialty Life Science)

Honours: First-Class Honours (18.60/20). Broke school score record: 98.21/100, yielding to a perfect score of 20/20

Activities: Class representative, Student Council member, school representative in Football tournaments, etc.

Projects Highlights:

Electric Motorbike (School science fair: Model and demonstration category)

In the aim of going green, assembled and electric motorbike: did the needed research, acquired relevant components to shift a regular bike into an electric. Replaced the back wheel with a larger one that includes the motor, expanded both seat stays to fit the wheel in and re-aligned the gear, chain and brakes. To complete the project, I added a battery, a trigger, etc. and connected all with electrical wires.
I was awarded second place award.

Robot building (Initiative by Unicef: Girls got IT workshop aiming at encouraging girls to join the STEM field)

Led my team to construct and program a robot, with pre-defined criteria, capable of avoiding all round collisions due to its sensors. We joined the motherboard to the motor, powered by a battery embedded in a car structure. Constructed an efficient robot in a record time with the ability to perform all assigned tasks.

I was awarded first place award and was appointed to be the ambassador / spokesperson detailing the experience in the video featured on the "Unicef" website and which can be found here.

INTERNSHIPS/PART TIME JOBS

ARM, Cambridge, United Kingdom: *Semiconductor and Software design company*

Software Engineering Internship (Open Source Software's Total Compute team), July 2022 – September 2022

- Worked on developing graphics engine for android simulations to allow less resource intensive testing in C.
- Investigated, debugged and cleaned code to make simulations run faster and to publish safer code.
- Wrote Documentation explaining my work for internal use.

Imperial College, London, United Kingdom

Undergraduate Teaching Assistant (Digital and Computer Architecture module), September 2021 – January 2022

- Tested software designed by the lecturer to make sure there were no bugs.
- Answered questions and helped students during problem classes.
- Guided students through labs and provided help when needed.

COMPUTER SKILLS

- Programming: C++, C, SQL, System Verilog, Python
- Engineering Software: Issie, LTSpice, VSCode
- Microsoft Office: Word, Excel, PowerPoint, OneNote

LANGUAGES

- English: Fluent (Written, Spoken)
- French: Fluent (Written, Spoken)
- Arabic: Fluent (Written, Spoken)

COMMUNITY SERIVCE

Enthusiastically engaged in several community service volunteering activities including:

Chance Association: Children against cancer

Sold products to raise funds. Paid regular visits to children suffering from cancer, supporting them with their studies and spending fun time with them ensuring by that both: beneficial and entertaining environment.

Lebanese Food Bank

Raised funds through bake sale, food competition events, etc. to secure meals for less fortunate families. Distributed meals while spending quality time namely with elderly people

REFERENCES

References available upon request