

Joao Guilherme R. F. Lopes

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Portfolio: <https://joaoguilhermelopes.github.io/JoaoGuilhermeLopes-Portfolio/>

Education

Coventry University | Coventry

September 2019 – November 2022

BEng in Computer Hardware and Software Engineering - Upper Second Class (2:1)

Coventry University Group | Coventry

September 2018 – July 2019

Foundation Engineering - Upper Second Class (2:1)

Skills

Programming: Java, Python, C, C++, SQL, HTML, VHDL, Assembly

Platforms: Linux (Ubuntu, Slackware, Debian), Microsoft Windows, Android, Mac OS

Hardware: Raspberry Pi, ARM Mbed microcontroller, Arduino, ESP-32

Software: Office, Android Studio, Visual Studio Code, IntelliJ, GitHub, Proteus, Vivado, Mars, Eagle, MATLAB

Communication: Design proposals, technical reports, presentations (large and small audiences)

Languages: English (fluent), Portuguese (native), Spanish (fluent)

Key Projects

Room Conditioning Automation System Using (Mbed - C++)

- Designed a centralized room conditioning automation system using a STM32F469NI board in Mbed – C++ language with the objective to control the elements around the house and regulating them as the user desired.
- Designed the respective system GUI for the application in the STM32 board display with the respective menus/submenus available for each element required to control and the following information values.
- Implemented the system in a real-world application by designing and printing a double layer PCB board that fitted the board with all the selected hardware components to fulfil the requirements of the system.
- Conducted substantial research and identified the problems in current room automations systems that may jeopardize users' privacy and comfort.
- Created multiple classes, objects, pointers, interrupts, threads and timers and imported some required libraries in order to be able to control automatically/manually the different elements in the system.

Client and Server based Library Management Systems with GUI (Java)

- Created two different applications that consisted on the same idea that is to design a GUI system using AWT and swing libraries to manage available data on an SQLite database.
- Developed UML diagrams for each application, representing how the system communicates and develops in the client-server.
- Designed both client and server divisions of the system and developed them with the objective for these to communicate with each other and exchange necessary information over a TCP network.

Bar Graph Display (C++)

- Created an application using sStream library to read, write or create .csv files to plot a desired bar graph table and counting the total amount of characters to display the graph and to fill the required gaps.
- Implemented features to display the bar graph in a 2-dimension space using ASCII art and an optional save option for the developed graph.

Single-Cycle CPU

- Using System Verilog, it was designed a single cycle CPU.
- Extended the processor design to support more instructions like R-Type, sb, andi, and more.
- Implemented these extended features to the code for every new instruction, modifying crucial module areas such as Datapath, controller, decoders, instruction/data memories and interfaces.
- Created a testbench to inspect all the instructions by checking for possible errors.

Experience / Relevant Coursework

Agile Development

- Cooperated as a team with colleagues from different courses with the objective of completing a project of an automation system where it required to develop front end, back end and required hardware.
- All of these features were required to be developed with Agile procedure, so as a team leader, I took the responsibility of allocating the appropriate tasks for each element in the group regarding their skills and previous experience.
- Made sure that these met the appropriate quality and deadlines and kept the required version control updated for each section and to plan all the steps and choices needed for a successful project delivery.

Embedded Microprocessor Project

- Designed a system that managed a conveyor belt and the surrounding temperature from a medical warehouse using a PIC18F4520 microcontroller.
- Implemented the login password system with multiple available combinations, coded a temperature regulation section where the user could set the desired temperature and the air conditioner would automatically regulate according the inputted values (using threads)
- Using a light sensor, created a production line system that counts passing boxes (using counter interrupts), that when reaching a certain value, would freeze the entire system for a specific amount of time, restarting then the process.
- Designed and tested using Proteus, a simulation schematic of the circuit with all the required side circuits, later with substantial hardware.

Activities / Achievements

Java Programming: Arrays, Lists, and Structured Data - Duke University (Coursera)	June 2020
Pascal Programming Language – College	May 2019
Cyber Security - Coventry University	December 2019
Photoshop Certification - Coventry University	March 2022
License – Full UK Driving License	February 2023

Other Experience

July '21 to Present	Rodizio Rico	Bartender / Meat Carver Restaurant
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- **Teamwork/Communication**- Ability do cooperate and communicate as a team to meet costumers demands.
- **Working under Pressure** – Making fast and sensible decisions under pressure to meet deadlines.
- **Integrity** – Dealing with conflicting and difficult situations, using the moral ability to do the right thing.

May '19 to June '21	Processing Warehouse - Mission Foods	Food Manufacturer / Food Mixer
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- **Organization** – Keeping a Methodic way of thinking by dealing with a large number of boxes and organizing them with certain specifications.
- **Maintaining competence** – Kept a professional self-development and performance throughout job.

References - Available Upon Request