

Hadi Rayan Al-Sandid

Portfolio: hsandid.github.io

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EDUCATION

- **École Polytechnique (l'X)** Palaiseau, France
MSc&T, Internet-of-Things : Innovation and Management *September 2021 - August 2023*
Courses: Internet of Things Workshops - Computer Networking - Business Models in the Digital Era
- **American University of Beirut** Beirut, Lebanon
Bachelor of Engineering, Computer and Communications Engineering; *September 2017 - August 2021*
GPA : 3.7/4.0, Graduated with Distinction
Courses: Operating Systems, Embedded Microprocessor Systems, Radio-Frequency Circuit Design, Network Security, Database Systems, Electronics, Software Architecture and Design, Data Structures and Algorithms

SKILLS SUMMARY

- **Hardware:** Familiar with KiCad/OrCAD for PCB Design, and PSPICE/Proteus for circuit analysis.
- **Software:** Proficient in C/C++. Familiar with Python, Java, and C#.
- **Embedded:** Familiar with microcontroller programming & communication protocols (UART, I2C, SPI).
- **Networking:** Familiar with network configuration and routing on Linux (Red Hat).
- **Languages:** French (Native tongue), English (Professional proficiency), Arabic (Conversational)

EXPERIENCE

- **American University of Beirut**
Research Assistant - Google AI-Impact Project *August 2019 - August 2021*
 - Worked under the supervision of Dr. M. Saghir to design an autonomous Irrigation Management System, which allows Lebanese farmers to use water resources more efficiently on their agricultural fields.
 - Delivered an on-site hardware solution to control irrigation routines using Raspberry-Pi systems for automation, a custom PCB design to support additional wireless technologies (LoRa/GSM), and an Android mobile application to allow farmers to access their agricultural fields' data.

ACADEMIC PROJECTS

- **Arrow: RISC-V Vector Accelerator for Machine Learning Inference** *August 2020 - July 2021*
 - Led software research during the design of a configurable hardware vector accelerator implementing a subset of the RISC-V v0.9 vector ISA extension, in the scope of my Bachelor's Final Year Project.
 - Experimented with the GNU/GCC RISC-V cross-compiler to optimize code for our accelerator, test additional ML-related instructions, and develop benchmarks to assess its performance. Our results showed that Arrow can perform 2x to 78x faster than a scalar RISC processor in certain edge machine learning inference operations.
 - Showcased this project in the Fifth Workshop on Computer Architecture Research with RISC-V (CARRV 2021), along with co-authors M. Saghir, I. Al Assir, and M. El Iskandarani.
- **RF Low Noise Amplifier operational in the X-Band** *September 2020 - December 2020*
 - Designed Low Noise Amplifier operational between 8 GHz and 12 GHz using Pathwave ADS, in the scope of a course on Radio-Frequency Circuit Design.
 - Experimented on several configurations of commercially available components, as well as transistor biasing conditions, to obtain an LNA with a target gain of 12 dB and a noise figure inferior to 1.5 dB, while keeping a minimal VSWR at both input and output matching networks.
- **Chat-Service Back-End in the Cloud** *January 2020 - May 2020*
 - Developed Back-End system which allows users to communicate with each other through an application interface, while guaranteeing scalability and a low-latency, in the scope of a course on Web Services in the Cloud.
 - Implemented back-end using the ASP.NET Core framework, and deployed it on the Azure DevOps cloud platform. It is composed of several deployable micro-services, offering a RESTful API, as well as a set of integration and deployment tests for validation.

AWARDS AND INTERESTS

- Dean's Honor List at the American University of Beirut in Spring 2018/Fall 2020/Fall 2021 semesters.
- Participated in the "Big Data AI and Media Hackathon" organized by Anghami and Touch (January 2019).
- Participated in "Google Hash Code 2020", while registered at the American University of Beirut