Ignacio Bricchi
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Twenty-one years. Seven countries (Argentina, Switzerland, USA, Germany, Mexico, Belgium, UK).
Numerous Passions (computer science, electronic engineering, physics, technology, science, math).
Learning at Imperial College and looking to make an impact through open source contribution to the world.

SKILLS

Languages: English (fluent), Spanish (fluent), French (proficient), Italian (basic)

Proficient Programming Languages: C++, Verilog, Python, Rust, HTML, CSS, JavaScript

Known Technologies: CPU Design, FPGAs, Compilers, Godot, Web development

EDUCATION

Imperial College London (University)   2019-present
Electronic and Information Engineering integrated masters

Third-year student, on track to receiving a First. Working as an undergraduate teaching assistant (UTA) for the second year compilers course.

In second year, received an overall First, Deans Award distinction (top 10% of class), and a 1* Decile ranking (top 5% of class). Also performed a UTA role for Discrete Mathematics.

In first year, received a First in all modules, distinction by Deans Award, and Best Final Term Project Award. (Decile ranking was not provided that year).

St Johns International School (High School)   2015-2019
Honors high school diploma

IB bilingual diploma: 40/45 points: with top mark 7/7 in Math, Physics, and Chemistry.

AP Math and Physics: 5/5 points in each.

SAT Math and Physics: 800/800 points in each.

WORK EXPERIENCE (linkedin.com)

Jump Trading (Compiler and Hardware Design)

March 2022 – Present

Hardware Design Team

I worked on a project to extend a fork of the LLVM project to include support for custom ISA extensions.

This includes everything from working on the clang front end, llvm optimizer, ld.lld linker, lldb, and more.

Development was around LLVM using assembly, C/C++.

ARM (Semiconductor and Software Design)

July 2021 - Fenruary 2022

Performance Modeling Team.

Participated in the creation of high-level abstraction models of future technologies to simulate and test their performance.

Led implementation of plugin that would run with SMMU simulations to produce meaningful performance statistics for experiments.

Contributed to improving the performance and adding new tools to the data processing stack the team uses.

Development was in C++, Python, and JS.

OESIA (Technology and innovation)

Summer 2018

Junior Engineer role focused on data engineering and project management.

Coordinated different departments to automate a process for identifying employees who fit into a category of "innovation worker" as defined by the Spanish government, a category of employee warranting OESIA, social security tax benefits with significant financial benefits.

The system tracked employees previously identified, keep track of their projects and co-workers, and tries identifying other employees which are likely to be "innovation workers". From here it provides a simple interface for the appropriate manager to manually check the information gathered and decide if the employee fits this scheme or not.

Borro (Luxury asset loaning)

Summer 2017

Junior Software Engineer role focused on blockchain financial ledger.

I ran experiments intended to develop and deploy a blockchain-based financial ledger to keep track of the large sums of money passing through the company on the daily.

The blockchain-based ledger is immutable and adds a layer of trust to the company which deals with high-value assets.

Experiments showed that the new system wouldn't add sufficient value to the business to justify the change.

Development was made using Java and a blockchain backend system called Multichain to manage the data. Then PHP and JavaScript were used to develop the webserver hosting a user interface for the ledger.

OWN DEVELOPMENT

Notable projects with descriptions and live demos where available can be found at (ibricchi.com)

All code for all projects can be found at (github.com)

SPACEX++ Autonomous Rover (C++, Verilog, Image Processing, Teamwork) (github.com) (ibricchi.com) (youtube.com)

Final group project for my second year at university which received a First.

My role was to develop the vision subsystem in Verilog to implement a hardware image processing unit to control an autonomous rover.

ICC C to MIPS Compiler (C++, MIPS, Compiler Design, Teamwork) (github.com) (ibricchi.com)

second-year coursework group project for a compilers module which received a First.

The compiler supports a subsection of C and can generate MIPS assembly compatible with the GCC linker.

Gambling FPGAs (C++, Verilog, Teamwork) (github.com) (ibricchi.com)

Second-year coursework group project for an Information Processing module which received a First.

Online multiplayer poker game where the players would use an FPGA with custom hardware to run and control the game.

Transient circuit simulator (C++, WebAssembly, Teamwork) (github.com) (ibricchi.com)

Submission for University first-year final group project. Received recognition as Best Final first-year Project.

The simulator supports linear and non-linear components, supports a standard API to implement new components when necessary. The solution is based on an industry-standard SPICE input format for circuits.

A simple Web Assembly based user interface was made and can be found hosted on my portfolio website.

iglu Programming language (C++) (github.com) (ibricchi.com)

Object-oriented interpreted programming language built on C++.

Project was created to learn more about the fundamentals of programming, and how languages might work at low levels. I have learned a lot from the project and am still developing it.

The language is still in its infancy, but can already be used for basic data manipulation, and is designed in a way that makes expanding the language with c++ classes accessible through the iglu interface simple.

Founder and leader of a high school educational programming club.

Led a programming club coaching people on how to start programming.

Taught HTML/CSS/JS and Processing, coaching particularly with emphasis on problem-solving skills and formulation of questions to be able to make the most out of online resources.

Club has continues to run 6 years after its foundation.

OTHER INTERESTS

Hobbies: Rubik's cubes aficionado
Sports: Taekwondo black belt, Climbing, Swimming, High School football and track & field captain
Music: Piano, Bass Guitar, high school orchestra