

JOÃO BARREIROS COELHO RODRIGUES

I'm a 23 years old Electrical and Computer Engineering MSc finalist at IST-ULisboa.

My main academic interests are Digital Systems Design, Digital Electronics, Computer Architectures and Embedded Systems. My principal focuses are reconfigurable computing technologies, namely FPGAs, novel digital design methodologies, such as High-Level Synthesis and edge deployment of hardware accelerated Artificial Intelligence models.



PROFILE & CONTACT

September 16th 2002
 Portuguese
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 Homepage
 @Joao-Ex-Machina
 João Barreiros C. Rodrigues

TECHNICAL SKILLS

HW Design and Programming

C/C++

VHDL

Verilog

RISC-V Assembly

UNIX Shell

MATLAB

Operating Systems

GNU/Linux

Toolset

Xilinx Vivado Suite

Cadence SoC Workflow

Git

Vim/Neovim

LaTeX

Area "softskills"

Technical support for Arch and other GNU/Linux distribution users around Alameda Campus.

Casual firmware-level support.

Casual consumer-level Hardware repair and upgrade (Thinkpad T430, etc.) .

Eletronics repair (Power supplies, antennas, etc.).

Languages

Portuguese

English

German

Russian

CERTIFICATES

IST's Excellent Teacher 24/25 Award

WORK HISTORY

11/2025 - present

INESC-ID / INESC-INOV

Junior Researcher

PhD student and Junior Researcher at the **ESDA** - Electronic System Design Automation group. My main research interests are Digital Systems Design, Digital Electronics, Hardware Acceleration for Artificial Intelligence, Embedded Systems, Reconfigurable Systems, High Performance Computer Architectures and the Internet-Of-Things. I focus on reconfigurable computing technologies, namely FPGAs for fast prototyping and re-design.

11/2023 - 08/2025

Instituto Superior Técnico

Teaching Assistant

Universidade de Lisboa

Under the Department of Electrical and Computer Engineering I have been lecturing laboratory and problem classes for the following courses:

Algorithms and Data Structures (LEEC): 1st Q. 2024/2025 (9/9 QUC eval.)

Digital Systems (LEEC): 2nd Q. 2024/2025 (9/9 QUC eval.) | 2nd Q. 2023/2024 (9/9 QUC eval.)

Programming (LEAer): 3rd Q. 2023/2024 (8.5/9 QUC eval.)

Programming (LEEC): 3rd Q. 2024/2025 (9/9 QUC eval.)

Computer Architectures (LEEC): 4th Q. 2023/2024 | 4th Q. 2023/2024 (9/9 QUC eval.)

As a Teaching Assistant at DEEC-IST and as President of HackerSchool I was a driving force in the foundation of the **Open Lab for the Scientific Area of Computer Systems**, to complement, through a hands-on approach, undergraduate teaching. The Open Lab is equipped with tools and materials to assist the development of workshops and student projects.

09/2024 - Present

HackerSchool

Board Member (Chief Hacker Officer - Hacker Culture and Lab Coordinator)

Head co-developer of the student group technical sphere.

I co-manage and organize HackerSchool's infrastructure and Lab, providing a technical platform for Hackers to build their projects and ensure their success. Continuing the goals of my administration I organize and assist on technical and recruitment workshops, promote good practices on Free and Open Source Hardware/Software and promote the partnerships with AC Computadores-DEEC

EDUCATION

09/2023 - Present

Instituto Superior Técnico

Universidade de Lisboa

Electrical and Computer Engineering

Master's in Engineering

Major in Computer Systems with a minor in Electronic Circuits and Systems.

Provisory average of **17 out of 20**.

Most relevant curricular units included in the degree and respective final grade(s):

2nd Cycle Integrating Project (Pre-Thesis): 18/20

Digital Systems Design: Projects: 17.1/20 | Final grade: 17/20

Electronic Design Automation: 18/20

System-On-Chip: 19/20

Advanced Computer Architectures: 17/20

Computing Systems Technologies (*Electronics for Computers and Quantum Computing*): 17/20

Applied Computational Intelligence (*Fuzzy Sys., ANNs and Evolutionary Comp.*): Final grade: 17/20

Sensors and Actuators: 19/20

Mobile Networks and IoT: Project: 18.8/20 | Final grade: 16/20

EXTRACURRICULAR ACTIVITIES

Hacker/Maker: I've been entangled with the Maker Community since I was a child, attending various workshops on Electronics, Programming, Robotics and Fabrication techniques. Since joining HackerSchool in 2021 I've developed directly or helped develop many projects:

- Lab security interface design, expansion and management
- Fixing and Upgrading a Prusa 3D Printer
- Liberating a Cetus3 proprietary 3D Printer
- GreenThumb - A Aeroponic System using IoT
- V.I.S.O.R. - An AI-powered voice assistant for which I am making a mechatronic interface with a CRT

I've also taught many workshops, particularly on Electronics, IoT and Computing systems: HackerSchool HSWatch Workshop Bundle (2022), HackerSchool Arduino Recruitment Workshop (2022-present), HackerSchool/NEEIST/RNL-DEI/ Linux Install Party (2022-present)

HISTORY / EXTRA

Historical section of my Curriculum Vitae. Adds non-essential or since deprecated information about education and work history.



OTHER TECHNICAL SKILLS

Programming

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Software & Tools

LibreOffice Suite

SIMULINK

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WORK HISTORY

09/2024 - 11/2025

INESC-ID

Intern

I am an intern at the ESDA - Electronic System Design Automation group of the HPCAS - High Performance Computer Architectures and Systems section of INESC-ID. I am doing my thesis on "Embedded System for Aerial Image Segmentation using Transformers", which focuses on a Hw/Sw Co-designed Accelerator for ViTs under the supervision of Prof. Horácio Neto and Prof. Mário Véstias

08/2022 - 09/2024

HackerSchool

President

Head developer of the student group social and technical spheres.
Commander of a team of over ten people to manage inside and outside communication, marketing, internal projects, material and human resources management.
The main focus of our administration is to revive the hacker spirit and culture inside HackerSchool through the adoption of a series of pro-open learning, pro-free and open source software and hardware policies
During my Administration improvements to the infrastructure were made, mainly the organization of a new hacker room

09/2021-08/2022

HackerSchool

Board Member
Marketing and Communication

Proponent of software reforms inside HackerSchool (switch to FOSS alternatives).
Developer of marketing material such as merchandise, stickers and flyers. Establishment of connections with other student groups and enterprises.

EDUCATION

09/2020 - 01/2024

Instituto Superior Técnico
Universidade de Lisboa

Electrical and Computer Engineering
Bologna Bachelor's

Finished Bachelor's with an average of 14 out of 20.
Relevant curricular units included in the degree and respective final grade(s):
Digital Systems: 17/20
Computer Architectures: 17/20
Object Oriented Programming: Project: 19.6/20 | Final grade: 17/20
Programming: 2nd project: 18/20 | Final grade: 15/20
Algorithms and Data structures: project: 18.3/20 | Final grade: 15/20
Computer Networks and the Internet: project: 17/20 | Final grade: 16/20

EXTRACURRICULAR ACTIVITIES

Activism and Voluntary Work: Since February 2023 I have been a member of ANSOL (Associação Nacional para o Software Livre) the portuguese associate organization of FSFE (Free Software Foundation Europe). ANSOL is a non-profit association dedicated to the promotion and development of Computing Freedom.
I was a volunteer at Lisbon Mini-MakerFaire 2023 helping mostly with resources and space monitoring. I have also been a regular participant/monitor/helper at the Linux Install Parties organized at Instituto Superior Técnico.
I am also dedicated to the hacker/maker cause, promoting hacker culture and giving my first talk on the matter: *Hacker Culture at IST* during MiniDebConf Lisbon 2023

Sports: I practiced Judo for six years, reaching the third kyu.
I then switched to Muay Thai, which I practiced for around three years.
From 2017 to 2020 I practiced archery as a School Sport.
In 2018 I won, together with my two teammates, the second place in the archery district school competition.
In 2019 I was appointed referee for the regional school competition.
As of September 2024 I started going to the gym with a preference for strengthTraining.

Non-Technical Leisure: I've been a fan of tabletop role-playing games (such as Dungeons and Dragons and Call of Cthulhu) for a long time. I'm also a casual player of chess.
I'm a avid reader of medieval fantasy (mostly J.R.R Tolkien and George R. R. Martin) as well as goth and weird fiction (particularly Edgar Allan Poe and H.P. Lovecraft).
I'm a casual player of acoustic and electric guitar with a preference for heavy metal.