



Matias Wang Silva

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 [matiasilva](#)
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Education

- 2022 - 2023 **Master of Engineering**, *Girton College, University of Cambridge*
Specialized in Electrical and Electronic Engineering
Tuition fully funded by Raspberry Pi bursary
Awards: Beatrice Mills Prize, Charlotte Rycroft Travel Award, Mary Ann Leighton Scholarship
- 2019 - 2022 **Bachelor of Arts in Engineering**, *Girton College, University of Cambridge*
Conferred title of 'Scholar' and formally admitted to the College's Foundation – top 3% of year
Awards: iGEM scholarship, Phyllis Tillyard Prize, Jane Catherine Gamble Prize, Mary Ann Leighton Scholarship, Outstanding Student Contribution to Education Award ([view](#), [view](#))
- 2017 - 2019 **International Baccalaureate**, *Carlucci American International School of Lisbon*
Grade: 45 out of 45 points, top 0.41% worldwide

Employment

- Nov 2023 - present **ASIC Engineer**, *Raspberry Pi*, Cambridge, UK
- Contributed majorly to software libraries and drivers for upcoming silicon; wrote system-level tests to verify integration of RTL blocks and ARM SystemReady compliance
 - Performed bringup of multiple ARM-based SoCs following tapeout and validated candidate RTL fixes on a Virtex-series FPGA platform
 - Wrote extensible Python tooling to auto-generate internal files, including the C HAL, simulation files and boot files, used across all silicon projects
 - Designed custom IP blocks from specification, to RTL, to verification with a C test

Work Experience

- 2022, 4 mo **ASIC Engineer**, *Raspberry Pi*, Cambridge
- Wrote system-level tests in C to ensure compliance with ARM TrustZone for various blocks in the Cortex M33-based RP2350 microcontroller
 - Applied tools, including Cadence SimVision, tarmac logs, and the GNU C toolchain, to debug failing C tests, fixing bugs in RTL as they appeared
 - Designed behavioral memory IP and used it to verify a QSPI interface with block-level testbenches
- 2021, 3 mo **Software Engineer**, *Raspberry Pi*, Cambridge
- Wrote [C applications](#) using a CMake-based toolchain to support the public launch of the RP2040 microcontroller
 - Designed example hardware circuits to demonstrate the feature set of RP2040 and fixed bugs in the SDK as they appeared
 - Developed Python tooling to auto-generate the official [Raspberry Pi Pico C HAL](#), including structs, from internal register data and the CMSIS SVD format
- 2020, 3 mo **Embedded Software Engineer**, *PragmatIC Semiconductor*, Cambridge
- Wrote firmware for an ARM Cortex MCU that leveraged FreeRTOS and concurrent tasks to adjust demo board features on-the-fly, responding to user instructions asynchronously
 - Extended the demo system with wireless capabilities using an ESP32 to pass JSON-encoded messages between the radio chip and the Cortex
 - Developed a GUI to interact with the board, greatly facilitating product demonstrations

Technical skills

- Hardware SystemVerilog, ARM assembly, computer architecture, data protocols
- Software Python, C, C++, CMake, JavaScript
- Tools Git, SimVision, Xcelium, cocotb, yosys
- Systems Operating systems, Linux for embedded development, Ansible

Languages

Native English, Portuguese
Professional French, Mandarin

CEFR C1, HSK3

Projects

- RISC-V minimal SoC (WIP)
- Designed an RV32I-compliant RISC-V processor with a minimal SoC design featuring an AHB interconnect and a UART
 - Performed formal and system-level verification using cocotb and riscv-formal
 - Tested on various FPGA platforms, including a Lattice iCE40 and a Xilinx Zynq-7000
 - [Project link](#) and [FPGA playground](#)
- Girton College Spring Ball
- Head of IT & Ticketing for my college's ball for two years in a row
 - Managed the website's DNS, static site generation, and backend infrastructure
 - Wrote a Django-based ticketing platform that handled thousands of concurrent requests, QR code-based ticket generation and decentralized ticket scanning
- Cambridge Computing Facility
- Created and maintained a video conferencing platform used by hundreds of university members in response to urgent pandemic demands
 - Given [award for my work](#) by the Senior-Pro-Vice Chancellor for Education
 - Managed a server cluster hosted on-prem with Ansible playbooks for scalable deployment
 - Rewrote the entire [internal and external documentation](#) website with a static site generator

Interests

- Analog photography
- [Online portfolio](#)
 - Capturing street, landscapes, and portraits on film with manual 70s, 80s cameras
 - Home b/w, color development and processing in self-made darkroom
- Gastronomy Society
- Started a university society dedicated to reviewing restaurants
 - Built [the website](#) from scratch and managed content publishing
- Pi memorizing
- Pi memorization record holder for Portugal to 601 digits
- Engineering outreach
- Involved in several capacities over the years:
- co-leader of Lisbon's weekend CoderDojo (2016-2020)
 - ambassador for my College and speaker at Engineering Department outreach events
 - organised university visits and attended events as a company ambassador