Alexandre Mascarenhas

MAINTENANCE TECHNICIAN · ELECTRONICS

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Personal Profile

Hello! I am Alexandre Mascarenhas, I am 26 and I'm from Brazil. Currently I am working as a maintenance technician at Sao Paulo Metro and as a Research Assistant at Sony Computer Science Laboratories and University of Tsukuba. As a master's degree student in Computer science at the University of Tsukuba in Japan under the supervision of Professor Claus Aranha, my research interests are in the field of: evolutionary computation, artificial intelligence, neuroscience and public transport systems.

Education

University of Tsukuba *Tsukuba, Japan*

MSc. in Computer Science *Apr 2022 - Current*

- **Courses:** Data analysis, Data engineering, Programming environment, Principles of Software Engineering, Topics in Computational Science I, Adaptive Media Processing, Experiment Design in Computer Sciences , Frontier Informatics A and B, Basic Computational Biology

Cruzeiro do Sul University *Sao Paulo, Brazil*

BSc. in Electrical and Electronic Engineering *Feb 2019 - Jun 2022*

- **Courses:** General electronics, Electricity, Instrumentation, Digital Electronics, Industrial Electronics, Principles of Telecommunications, Microprocessors, Resistance of materials I and II, Systems integration, Transformers and electrical machines, Programming paradigms

University of Sao Paulo *Sao Paulo, Brazil*

BSc. in Physics *Mar 2015 - Dec 2021*

- **Courses:** Physics I - V, Experimental Physics I - V, Quantum Physics, Electromagnetism I and II, Thermodynamics, General Relativity and Astrophysical Applications, Statistical Mechanics, Differential and Integral Calculus I - IV, Linear Algebra I, Vectors and Geometry, Introduction to Ordinary Differential Equations and Applications, Introduction to Probability and Statistics I, Artificial Intelligence, Introduction to Computing for Exact sciences and Technology, Introduction to Computational Physics I and II, Numerical Calculus with Applications to Physics

SENAI Roberto Simonsen *Sao Paulo, Brazil*

Electronic Technician and Maintenance Electrician *Jun 2011 - Jun 2015*

- **Courses:** Electrical installations, Analog Electronics, Digital electronics, Analysis of electronic Circuits, Power electronics, Technical design, Microcontrollers, Electronic equipment maintenance

Work Experience

Sony Computer Science Labs Inc. *Kyoto, Japan*

Research Assistant *Feb 2023 - Current*

- This project consists of a portable relative risk estimator for covid 19. Variables such as the level of CO2 in the air, humidity, temperature, noise, among others, are collected through sensors, and this data is sent to an ARM processor that, through supervised models, provides an estimate of the relative risk that the environment offers of being contaminated with the COVID 19 virus.
- **Technical Skills:** Python (numpy, pandas, tkinter, pytorch, tensorflow), Git, Hardware development, Embedded linux, ARM 64

University of Tsukuba *Tsukuba, Japan*

Research Assistant *Oct 2022 - Current*

- Estimate the LAI (Leaf Area Index) of plantations through Regression Models, Neural Networks and Machine learning
- **Technical Skills:** U-net CNN, Python with Genetic Algorithm (NumPy, Pandas, opencv) and Git

São Paulo Metropolitan Company

Urban railways that operate in the city of Sao Paulo *Sao Paulo, Brazil*

Maintenance Technician - Paused for Master's *Oct 2017 - Current*

- Development of asset monitoring systems, Hardware/Software for embedded systems(Microcontrollers and Linux Processors), with sending to a database for further analysis and predictive maintenance
- My team and I developed a data acquirer (hardware and software) capable of acquiring data from assets in the field, analyzing them locally and sending the information to a central server
- We achieved a considerable decrease in failures (around 39%) with predictive maintenance
- **Technical Skills:** Maintenance of electronic assets, Python with Pandas, NumPy, Matplotlib, Scikit-learn, C/C++, Linux for ARM, Git and Zabbix
- **Soft Skills:** Teamwork, Time Management, Communication and Presentation skills.

Meu Web Gestor

Services provision in Business Management *Sao Paulo, Brazil*

Front-end Developer *Jul 2013 - Feb 2014*

- Website and Software Development for business management
- **Technical Skills:** HTML/CSS, Javascript and PHP

University Projects

Laboratory Assistant
University of Sao Paulo - Institute of International Relations

Sao Paulo, Brazil
Aug 2017 - Nov 2017

- Managed the use of computers and assisted students in the use of software and resources related to basic computational tasks
- Maintenance of hardware

Laboratory Assistant at INOVALAB@POLI
University of Sao Paulo - Polytechnical School

Sao Paulo, Brazil

Supervisor: Prof. Dr. Roseli de Deus Lopes
Sep 2016 - Mar 2017

- Assisted undergraduated and graduated students in the use of machines, equipaments and tools in the Prototyping Laboratory (CITI), mainly in tasks related to electronics and programming

Laboratory Assistant at Demonstration Lab
University of Sao Paulo - Institute of Physics

Sao Paulo, Brazil

Supervisor: Prof. Dr. Mikiya Muramatsu
Aug 2015 - Jul 2016

- Maintained the experiments of the Demonstration Laboratory and proposed and set up new experiments

New Modules for Toroidal Nuclear Reactor System Trigger Control at Tokamak TCA-BR
University of Sao Paulo - Institute of Physics

Sao Paulo, Brazil

Supervisor: Prof. Dr. Ricardo Magnus Osorio Galvão
Jun 2015 - Jun 2016

- Modernization of the Toroidal Magnetic Field Trigger of the Nuclear Fusion Reactor TCABR of the University of Sao Paulo. The project aimed at replacing the old magnetic field trigger board of the reactor that used analog electronics systems, with a microcontroled system with remote access via internet, using both Arduino and its modules. The project included everything from the elaboration of the circuits, through the programming of the software and the prototype of the electronic board, following the test of the system

WorldSkills Trainnig
SENAI Roberto Simonsen

Sao Paulo, Brazil
Jun 2011 - Jun 2016

- **HARDWARE** - Development of hardware to solve problem situations. Elaboration of the circuit, which could be Analog, Digital or Microprocessed, simulation in software (usually PROTEUS), design and manufacture of the electronic boards responsible for carrying out the task
- **SOFTWARE** - Development of software for microcontrollers in C, C++ and/or Assembly languages
- **MEASURES AND REPAIRS** - Detection of defects, consequently, repair of available hardware and subsequently performed measurements according to hardware manuals and documents
- **ASSEMBLY** - Mechanical and electronic assembly of devices made available with manuals and documents

Skills

Computation	• **Programming:** C/C++, Python (Pd, Np, Scikit-learn, OpenCV, Matplotlib, Bokeh, Deap), Assembly, HTML/CSS, JavaScript • **Hardware:** Assembly and Maintenance • **Tools:** Linux, Windows, Bash, LaTeX(Overleaf/R Markdown), Git, Anaconda, MATLAB, Libreoffice, Docker,
Electronics	• **Hardware:** Design, Test, Assembly and Maintenance of PCBs, ARM, Mirocontrollers, Power drivers • **Circuits:** Projects, Design and Development • **Tools:** Proteus, Eagle, CadSIM

Achievements

2013	**Bronze Medalist**, Brazilian Public Schools Mathematics Olympiad (OBMEP)	*Brazil*

Interests

Democratization of knowledge	I like everything related to Free Software and Open Science and other things capable of making this a reality
Video Games	Mainly the "old" ones (very relative lol), like PS2 :)
Sports	Mainly skateboarding, soccer and bike

Languages

English	Professional proficiency
Spanish	Basic proficiency
Portuguese	Native proficiency

References available upon request.