

Luiz Eduardo Amaral

Campinas - SP

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🌐 <https://luxedo.github.io/> • **in** luiz-nishino-amaral •  luxedo

Profile

Passionate senior developer that loves to transform data into inovative solutions

A 10-year career in programming, mainly dedicated to development and maintenance of sensors based on computer vision, as well as hardware prototyping, programming in embedded systems, systems programming, development of detection algorithms with traditional computer vision and deep learning, development of predictive models, and also web development.

In my free time I like to contribute to Open Source projects, having published packages in Python, Ruby and Node. Additionally, I have commits accepted in project documentation on Google, MDN, and scikit-learn, and in code from several other repositories.

Job Experience

Tarvos

Senior Data Scientist

Campinas

2019–Current

Prototyping and maintenance of a pest detection smart trap

- Building datasets of three different classes of agricultural pests;
- Training of image object detection models for pest counting with performance above 95%;
- Development of Linux systems to execute detection models;
- Development for embedded systems in C, C++ and Rust;
- Creation of classic image-based models for trap operation;
- Planning, management and execution of refactoring of the company's web platform;
- Statistical modeling: Trap capture rate; Ideal distance between the traps; Forecast of pest infestation;
- Creation of reporting models and publication in microservices architecture.

Dom Rock

Data Scientist

Campinas

2016–2018

Analysis and exploration of structured and unstructured data

- Creation and maintenance of ETL pipelines;
- Image analysis, processing and OCR;
- Creation of an image positioning algorithm based on morphological characteristics;
- Experience with statistical models (polynomial regressions, ensemble methods, Bayesian statistics, SVMs, neural networks);
- Implementation of git for version control of the company's code;
- Maintenance of the company's Web system, as well as creation of new screens and views.

Instituto de Biologia Molecular do Paraná*Researcher/Systems Developer*

Research in colloids, emulsions, electrospray for synthesis of magnetic beads and strings
Prototyping of a lateral flow reader device

Curitiba*2013–2016*

- Patent for magnetic microspheres;
- Creation of the diagnostics device hardware and software:
 - Hardware prototyping;
 - Creation of the camera calibration algorithm;
 - Creation of the chip detection and positioning algorithm;
 - Creation of the diagnostics classification algorithm;
 - Development of the graphical interface in PyQt;
 - Publication of libraries to control the MCP3008 and ADS1115 ICs in Python;
 - Registration of software for the device and a patent for the system;

Universidade Federal do Paraná*Undergraduate Researcher/Masters*

Surfaces and materials research

Curitiba*2008–2013*

- Research into modification of polymers by nitrogen plasma for device sealing lab-on-a-chip;
- Electrowetting research to control the flow of lab-on-a-chip devices;
- Patent for a check valve sealed with ferrofluid that was the subject of the master's thesis;
- Development of a library to control stepper motors with the IC ULN2803A;

Technical Skills

Programming Languages: Python, C/C++, Rust, Elixir, Bash, HTML, CSS, Javascript, Typescript, R, Octave, Assembly, \LaTeX

Systems: Raspberry Pi, ESP32 (ESP-IDF), STM32 (Cube MX, CMake), Raspberry Pi Pico, Arduino, SAM D21

Libraries: TensorFlow, Pandas, Numpy, Scipy, Scikit-Learn, Jupyter, DVC, OpenCV, NLTK, Matplotlib, Seaborn, Unittest, Black, Ruff, Pre-commit, Scrappy, Requests, Flask, Selenium, Puppeteer, Express, Jest, Mocha, Chai, ESLint, Dotenv, Axios, Handlebars, Twilio, Zod

Google Cloud: Compute Engine, Kubernetes, Firebase, Cloud Functions, Storage, DNS

Databases: MongoDB, SQL, Firestore, Elasticsearch

Others: GNU/Unix, Git, Docker, GDB, CI/CD, TDD, Agile/Scrum/XP

Education

Unicamp*Postgraduate*

Complex Data Mining

Campinas*2021–2021*

UFPR
Masters
Master of Engineering and Materials Sciences

Curitiba
2011–2013

UFPR
Graduate
Bachelor in Physics

Curitiba
2005–2010

Courses

Coursera: Deep Learning Specialization

Coursera: Machine Learning

Coursera: Convolutional Neural Networks

Coursera: Cryptography I

Edx: Using Python for Research

Edx: I Heart Stats: Learning to Love Statistics

Coursera: Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization

Coursera: Machine Learning Specialization

Coursera: Agile Project Management

Coursera: Agile with Atlassian Jira

Coursera: Structuring Machine Learning Projects

Coursera: Algorithms, Part I

Coursera: Neural Networks and Deep Learning

Edx: DSE210x Probability and Statistics in Data Science using Python

Languages

Native: Portuguese

Proficient: English

Intermediate: Spanish

Portfolio and Open Source projects

Check my projects at <http://luxedo.github.io/>
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