Luiz Eduardo Amaral

Data Scientist

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📇 PROFILE

Over the course of 10 years, I have honed my programming skills, focusing on the development of vision-based sensors. My passion lies in bridging artificial intelligence with the physical world, having brought four different vision based products to market.

In my free time, I enjoy contributing to Open Source projects, having dozens of packages published in Python, Ruby, JavaScript, Rust, and Elixir. Additionally, I have contributions to projects on Google, MDN, and scikit-learn, as well as code in various other repositories.

💼 PROFESSIONAL EXPERIENCE

Tarvos   2019 – present | Campinas, Brazil
Senior Data Scientist
- **Led the software development of Tarvos' flagship product:** a pest detection smart trap
- **Built deep learning models (>95%)** to automatically identify and classify pest species directly on the smart traps
- **Deployed the deep learning models into the smart trap** allowing for edge-based pest identification and intelligent decision-making
- **Assembled image datasets with over 100,000 original photos** for pest detection, which served as the foundation for training high-accuracy deep learning models
- **Spearheaded the complete refactoring of the company's web platform**, by creating CI/CD pipelines, monitoring and adding 80% test coverage, enhancing scalability, security, and reliability
- **Established the company's software development foundation** by building an AI department for project standardization, a separate QA department for web software quality assurance
- **Engineered hardware testing devices** to ensure the quality and reliability of trap manufacturing, reducing components fail rate
- **Deployed three advanced statistical models**: to determine trap capture rates, optimal distances between traps, and predict pest infestations
- **Created four reporting dashboards** and published them in a microservices architecture to facilitate strategic decision-making

Dom Rock   2016 – 2018 | Campinas, Brazil
Data Scientist
- **Developed 20+ ETL pipelines** to ensure data integrity, quality, and reliability, enabling accurate and reliable data analysis
- **Built an AI-powered Product Matching System**, achieving a 95% success rate and significantly streamlining client operations
- **Introduced Git as a version control tool** reducing lead time for changes in 80% and guaranteeing traceability

Instituto de Biologia Molecular do Paraná   2013 – 2016 | Curitiba, Brazil
Developer
- **Led the prototyping of a diagnostic device for Lateral Flow** chips with imaging technology, being responsible for hardware and software development
- **Enhanced the accuracy and reliability of diagnosis** with advanced camera calibration algorithms, chip detection and result classification

🎓 EDUCATION

Postgraduate Specialization in Machine Learning for Complex Data Mining
Unicamp

2021 | Campinas, Brazil

MSc in Engineering and Materials Sciences
UFPR

2011 – 2013 | Curitiba, Brazil

BS in Physics
UFPR

2005 – 2010 | Curitiba, Brazil

🧠 TECHNICAL SKILLS

Data Science ● ● ● ● ●
Computer Vision, Neural Networks, Machine Learning, Natural Language, Data Visualization, Statistical Analysis, Web Scraping

Systems Programming ● ● ● ● ○
GNU/Linux, Raspberry Pi, Shell Scripting, Make/CMake, Systemd, USB, Filesystems, GDB

SRE Practices ● ● ● ● ○
TDD, CI/CD, E2E Testing, Agile/Scrum/XP, Git, Docker

Web Development ● ● ● ● ○
Web Protocols, APIs, CSS Preprocessing, SSR, MongoDB, Microservices

Embedded Systems ● ● ● ○ ○
ESP32, STM32, SAM D21, Free RTOS, Raspberry Pi Pico

Cloud ● ● ● ○ ○
GCP: Compute Engine, Kubernetes, Firebase, Cloud Functions, Storage, DNS, IAM, Network. AWS: EC2, Cloud Storage

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

💬 SOFT SKILLS

Teamwork
Taking initiative and actively listening to contribute significantly to team success.

Adaptability
Thrive in new situations, adjusting to different environments and cultures with mental flexibility, empathy, and respect for diversity.

Effective Communication
Deliver clear, concise, and persuasive messages, tailoring language to audience and context.

Problem Solving
Approach challenges analytically and collaboratively, seeking creative and effective solutions with critical thinking.

Creativity
Break down complex problems and generate unconventional solutions, demonstrating strong critical thinking skills.

🌐 LANGUAGES

Portuguese — Native/Bilingual

English — Fluent

Spanish — Proficient

📁 PORTFOLIO

Check my projects at http://luxedo.github.io/. I have a story for each one of them!