Alexandre Augusto Arduini Tavares

AI & software engineer

Ghent, Belgium | Brazilian and EU Citizen

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I have more than ten years of experience in software and engineering, including more than six in industrial computer vision.

Professional experience

Yazzoom | Computer Vision Project Engineer

Jun 2024 - Present | Ghent, Belgium

Design hardware and software architectures for industrial vision systems

Lead acquisition, labeling, model training and deployment

Manage schedules and cross-functional collaboration across concurrent projects

Aperam Genk | Computer Vision Engineer

Sep 2019 - Jun 2024 | Genk, Belgium

Mentored junior engineers and identified computer vision opportunities for the innovation team

Aperam Genk | Reliability Engineer

Jun 2017 - Sep 2019 | Genk, Belgium

Initiated a predictive-maintenance data-science project

Installed and monitored more than 1,000 sensors across more than 100 assets

Applied data-driven prioritization under tight budget constraints

Aperam South America | Automation Analyst & Telecommunications Engineer

Jun 2014 - Jun 2017 | Brazil

Deployed trunked radio serving more than 1,000 employees

Installed and maintained more than 500 security cameras

Modernized radio communications within budget through cross-team collaboration

RCS Informática | Developer

Approximately Dec 2013 - May 2014 | Brazil

Aperam South America | Intern

Sep 2013 - Nov 2013 | Brazil

Universidade Federal de São João del-Rei (UFSJ) | Numerical Calculation Monitor

Feb 2013 - Aug 2013 | Brazil

Selected projects

Improving aluminium profile inspection

Internal project

Improved an existing Python vision inspection system through processing corrections, profile-specific calibration and web inspection views. Evaluated changes using archived images; production validation remains pending.

P&ID tag extraction and verification

Internal project

Rebuilding an AI-assisted workflow to reduce manual tag-verification effort in complex brownfield P&IDs. Own architecture, cloud infrastructure, backend, frontend and model integration, connecting extraction, engineer correction and reviewed inventory exports. Time savings and error reduction remain to be validated.

Industrial surface-defect inspection

Professional | Aperam Genk

Developed a Python, OpenCV and PIL algorithm for millimetric surface-defect detection in high-resolution coil imagery. Rolled out across multiple plants, improving inspection reliability.

AgileForge: building software with AI agents

Independent Project

Built an independent Python CLI and local dashboard for planning AI agent work, with approval checkpoints, rule-based task routing and records linking outputs to their inputs.

Technical capabilities

Industrial cameras & optics | Image acquisition | Python | OpenCV | Surface defect detection | Model training & deployment | Hardware/software architecture | Sensor Infrastructure | Predictive Maintenance | Agentic AI | Google ADK | Structured outputs | Agent orchestration | Shell | Image segmentation | Image classification | Contrastive learning | PyTorch | MLflow experiment tracking | FastAPI | SQL / PostgreSQL

Education

Master in Software Engineering | Quantic School of Business and Technology | In progress (Expected January 2027)

Agentic AI Nanodegree | Udacity | Completed October 2025

Specialization in Software Engineering for Data Science Applications | Universidade Federal do Rio Grande do Sul (UFRGS) | Completed 2026

B.Sc. in Telecommunications Engineering | Universidade Federal de São João del-Rei (UFSJ) | Completed 2013

B.Sc. in Science and Technology | Universidade Federal de São João del-Rei (UFSJ) | Completed 2011

Selected certifications

Computer Vision Nanodegree | Udacity | Issued 2021-02

PCAP - Certified Associate in Python Programming | OpenEDG Python Institute | Issued 2023-05

Test-Driven Development Specialization | LearnQuest | Issued 2025-04

Languages

English: Fluent | Portuguese: Native | French: Intermediate | Dutch: Intermediate