

André

Fonseca Cavalcanti

Mechanical Engineer · Software Dev.
Industrial Manager

CONTACT

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EDUCATION

2023 – 2025

Professional M.Sc.

Science, Technology & Innovation · UFRN

2018 – 2021

B.Eng. Mechanical Engineering

UFRN

2012 – 2017

B.Sc. Science and Technology

UFRN

LANGUAGES

Portuguese Native



English Fluent



SKILLS

ENGINEERING / CAD

Fusion 360 SolidWorks

Creo Parametric Scilab

DEVELOPMENT

Python TypeScript React

FastAPI Node.js SQL

Firebase Next.js

DATA & AI

ANN / SOM Prophet XGBoost

Metabase Excel / VBA

MANAGEMENT

Lean PDCA MPC

CMMS Industry 4.0

AWARDS

2013

Champion – IEEE Very Small Size
Brazilian Robotics Competition

EXPERIENCE

Soluções Corporativas Integradas LTDA

Oct 2025 – Present

Co-founder · Operations Director

Co-founded a technology company for industrial and business management software, responsible for strategy and technical roadmap. Leads four SaaS products: ManOS (industrial CMMS), SOFIN (AI-powered financial management), CompraCerta (retail procurement) and OpenInsurance (insurance management).

Nordeste Fruit LTDA

May 2025 – Sep 2025

Industrial Manager

Eliminated stockouts and reduced raw material losses by restructuring demand and production control processes. Leading a team of 30 employees, improved factory energy efficiency and operational costs.

Implasverde Indústria de Plásticos Baixa Verde LTDA

Jan 2022 – Apr 2025

Industrial Manager

Led a multifunctional team of 160 employees across production and support departments. The application of Lean and PDCA methodologies resulted in a 33% increase in plant productivity, with continuous improvement in quality and efficiency indicators.

Implasverde Indústria de Plásticos Baixa Verde LTDA

Nov 2020 – Dec 2021

Maintenance Supervisor

Led the implementation of MPC (Maintenance Planning and Control) with a 10-person team, reducing maintenance costs by 17% and improving equipment availability and reliability across the plant.

Guararapes Confeções S.A.

May 2019 – Apr 2020

Engineering Intern

Developed an integrated solution to automate production control in the cutting department, eliminating manual reporting and creating real-time KPI dashboards to support strategic decision-making.

Instituto Metr pole Digital – UFRN

Jan 2018 – Apr 2019

Research Fellow · Prototyping Laboratory

Coordinated the NEDGlove project – a computational glove for virtual motor rehabilitation, integrating sensor hardware with gamification software for physiotherapy. Worked on electronic and mechanical prototype development for university research.

Barreira do Inferno Launch Center

Aug 2015 – Jan 2016

Research Intern · DCTA / Brazilian Air Force

Developed, within the SPACEVANT project, an automatic cargo launch system for unmanned aerial vehicles, enhancing DCTA's aerospace mission capabilities. The work was published at CONEM 2016.

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ACADEMIC PROFILE

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RESEARCH AREAS

Industry 4.0 & Autonomous Maintenance
Cyber-Physical Systems
Applied Artificial Intelligence
Process Optimisation
Autonomous Mobile Robotics

FIELDS OF WORK

Mechanical Engineering
Computer Science
Business Administration
Industrial Economics

PUBLICATIONS

7 papers at national and international conferences: robotics, AI, industrial maintenance and rehabilitation.

5 citations (Scholar, Jan/2014)

COMPANY

Soluções Corporativas Integradas LTDA

Founder · Operations Director

solucoesintegradas.com.br

SOFTWARE PROJECTS

ManOS — Industrial CMMS

Web-based maintenance management with 8 dashboards, MTTR/MTBF/RPN calculation and ISO 14224 & ISO 55000 compliance. Demo with 50+ assets and 1,000+ work orders.

React TypeScript Firebase Node.js

SOFIN — Financial Management

SaaS for SMEs with generative AI (Gemini), invoice OCR, automatic bank reconciliation, P&L statements and client-side AES-GCM encryption.

React TypeScript Firebase Gemini AI

CompraCerta — Procurement Intelligence

B2B SaaS for supermarkets with demand forecasting via Prophet + XGBoost ensemble, supplier scoring and purchase orders with multi-tenancy.

FastAPI Python PostgreSQL React

OpenInsurance — Insurance Management

Insurance quotation and policy management platform with Zod schema validation and Prisma ORM.

Next.js TypeScript Prisma

RESEARCH & INNOVATION

Machinery Guardian · ABS Wind Brasil S/A

2021 – 2025

Autonomous Maintenance for Wind Turbines using SOM Neural Networks

Developed an autonomous diagnostic system for wind turbine gearboxes combining acquisition hardware and unsupervised SOM neural networks. The project was certified by ABS Wind do Brasil Industrial S/A in January 2024.

Heart Disease Detection with Neural Networks

2020 – 2022

Coordinator · UFRN

Coordinated the development of a human heart disease classifier based on unsupervised SOM networks, with a multidisciplinary team of five undergraduates and publication of results at an international conference.

PUBLICATIONS

- [1] A. Cavalcanti, V. Landim, J. Medeiros Neto, J. Dantas, and G. L. A. d. Albuquerque. Cargo transport and launch support from an unmanned aerial vehicle. In *IX Brazilian National Congress of Mechanical Engineering (CONEM)*, Fortaleza, Brazil, 2016.
- [2] A. F. Cavalcanti. Unsupervised autonomous maintenance system using artificial intelligence. In *Undergraduate Programme in Mechanical Engineering – UFRN*, 2021. Final Year Project.
- [3] A. F. Cavalcanti. Machinery Guardian: Optimising maintenance with artificial intelligence and autonomy. In *Professional Graduate Programme in Science, Technology and Innovation – UFRN*, 2025. M.Sc. Dissertation.
- [4] A. F. Cavalcanti, M. V. Araújo, and D. P. F. Pedrosa. Small wheeled autonomous mobile soccer robot. In *Joint Conference on Robotics: SBR-LARS Robotics Symposium and Robo-control*, page 49, São Carlos, Brazil, 2014.
- [5] A. F. Cavalcanti, F. B. S. d. Medeiros, and R. R. Dantas. Evaluate Leap Motion control for multiple hand posture recognition. In *19th Symposium on Virtual and Augmented Reality (SVR)*, Curitiba, Brazil, 2017.
- [6] A. F. Cavalcanti, L. P. W. d. Oliveira, M. A. L. Cabral, E. P. Matamoros, and E. A. R. Seabra. Detection and classification of bag making machine failures using artificial neural networks. In *7th International Conference on Integrity-Reliability-Failure (IRF2020)*, Funchal, Portugal, 2020.
- [7] A. F. Cavalcanti, A. S. d. Souza, A. P. V. Pinto, L. P. W. d. Oliveira, R. B. Julião, M. A. L. Cabral, E. P. Matamoros, and E. A. R. Seabra. Detection and classification of water chiller failures using artificial neural networks. In *7th International Conference on Integrity-Reliability-Failure (IRF2020)*, pages 91–92, Funchal, Portugal, 2020.