Gustavo Castro

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Summary

Senior Engineering Manager with 25+ years of experience leading software, SaaS, AI, computer vision, and IoT platforms from concept to scale.

Proven track record of building and scaling high-performance engineering teams, including growing organizations from 15 to 38 engineers while assuming ownership of complete software portfolios. Strong background in platform modernization, AI-driven products, telemetry systems, and hardware–software integration.

Experienced in aligning engineering strategy with business goals, leading cross-functional and distributed teams across the United States, Europe, and Asia. Known for delivering scalable, reliable platforms while fostering a culture of ownership, accountability, and continuous improvement.

Expertise includes Engineering Leadership, SaaS Platforms, AI & Computer Vision, IoT Systems, Platform Engineering, System Architecture, and People Management.

Experience

Creare Sistemas SA

Engineering Manager, Canoas, RS
11/2023 - 01/2026

Team Leadership & Scalability

- Led and scaled the engineering organization from 15 to 38 engineers in one year, assuming supervision of the entire software portfolio.

- **Platform Modernization**: Spearheaded architectural redesign to support 5x growth in fleet capacity while significantly reducing latency for vehicle positioning and safety events.

- **Event-Driven Architecture**: Implemented a standardized JSON contract system with versioning and self-contained enriched events using **Kafka**, ensuring downstream consumer stability and decoupling.

Systems Engineering & Performance

- **High-Throughput Real-Time Systems**: Owned a fleet control system processing **1.8 million position events per hour** for 45,000 vehicles.

- **Resilience & Optimization**: Introduced Kafka-based resilience to prevent data loss from IoT devices and refactored services into scalable microservices to optimize CPU, Memory, and Database consumption.

- **IoT Gateway Optimization**: Resolved critical scalability bottlenecks in third-party IoT gateways by developing a **Redis-based middleware** for command routing and origin tracking.

- **Edge AI Implementation**: Optimized Driver Monitoring Systems (DMS) by migrating passenger detection logic from backend polling to an **embedded edge application**, resolving latency and command accumulation issues.

Management & Research

- Managed the research team in partnership with the Federal University of Rio Grande (FURG), promoting innovation in AI-powered Safety Cameras and telemetry for transport and agribusiness.

- Actively performed cross-functional roles as QA, PO, and Project Manager during critical delivery phases.

Ponfac SA

R&D Manager, Porto Alegre, RS
10/2019 - 07/2023

- Management of the R&D Team, development, customer service, IoT
- Innovation Project Management, new solutions for computer vision projects
- Visual Inspection, Computer Vision and Robotics Projects
- Specification of new technologies and software architecture
- Ponfac Innovation Project Coordinator with FINEP (Brazilian government development area)

Accomplishments:

- **AI Weight Estimatio**n: Developed an area-to-weight conversion algorithm using AI-processed images of pigs, considering age, length, height, and sex.

- **No-Code CV Platform**: Designed and developed an IDE for computer vision, integrating proprietary SDKs, OpenCV, and AI models into a single platform.

- **Edge AI Robotics**: Implemented an edge-based animal monitoring system for farm robots using **MQTT** and **GPU-accelerated inference** for real-time behavior detection.

- **Cloud AI Integration**: Designed an asynchronous cloud-based AI service using **Kafka** selectors to route video data for specialized detections (hitchhiker, drowsiness), ensuring reliability through confidence thresholds and post-processing.included an Integrated Development Environment (IDE) that seamlessly integrated the company's proprietary SDK, OpenCV, and various AI solutions into a single, user-friendly platform.

Elo Sistemas Eletronicos SA

Software Development Manager, Porto Alegre, RS
08/2010 - 09/2019

- Software development manager: team management and process improvement;
- Project management, issuing financial and physical reports for company management, contracts, payments, scope definition;
- Outsourced management;
- Specification of new technologies and software architecture;
- Management of systems and applications development projects, remote reading server, alarms and automatic registration for Smart Grid;
- Smart Grid Project - Integration between elements of the smart grid system for infrastructure to access measurement data in consumers: industrial, commercial and residential, managing the project, schedule, reports, scope, budget;
- Router project: development of a network infrastructure router for access to residential, commercial and industrial meters, managing the product project, schedule, budget, staff, specifications and pilot batch production;
- Relationship with educational institutions for the development of fostered projects.
- Specification of protocols and software architecture for Smart Grid;
- Definition and development of the smart grid solution architecture for Brazil;

Fundação Bradesco

Professor Technical Course in Electronics, Gravatai, RS
03/2002 - 10/2011

Chairs taught: Introduction to Informatics; Microcontrollers and Interfaces; Organization and Standards; Programmable Controllers; Local Area Networks; Industrial automation; Industrial Networks

ALTUS SA

R&D Manager, Sao Leopoldo, RS
08/1999 - 07/2010

- Management of the R&D sector: budget, staff, hiring, training, negotiation with national and international suppliers;
- Software development manager (Software Factory): team management and process improvement;

- Management of the project team (25 people) to develop industrial automation products and systems. Performing systems projects, embedded software, networks, high performance systems, high availability, project management, schedule, budget, acquisitions, suppliers and production;
- Specification of new technologies and software architecture;
- Projects of fault tolerance systems in oil platforms, automation control, project management of fault tolerance products, budget, schedule, engineering team, production and installation monitoring;
- Project management innovation products: programmable controllers (hardware, software, test), programming software;
- Project feasibility analysis and budget;
- Participation in R&D events, as well as national and international fairs;
- Development with partner companies in India and the Czech Republic, where it held technical meetings and training on new technologies;

Skills

Software, Embedded Software, C++, Microsoft Powerpoint, Power BI, GIT, C#, Machine Learning, Microsoft excel, Software Development, Jira, Product Development, Python, Software Engineering, SQL, Database, Computer Vision, Image Processing, TCP/IP, PLC, Industrial Protocols, MQTT, IoT, OpenCV, AI Smart Cam, SaaS, Java, Next.js, IoT (Internet of Things)

Education

MBA in Management of Technology-Based Companies
University of Vale do Sinos - UNISINOS, Sao Leopoldo, RS
10/2006

Bachelor's in Computer Science
University of Vale do Itajaí - UNIVALI, Itajai, SC
07/1995

Languages

Portuguese (native), English

Internacional Experiencie

2015: monitoring of integration tests between management system and data with remote energy meters, USA

2009: Hannover fair, Germany

2009: 20 days in technical specification meeting with project development partner, India

2008: 10 days for training, Germany

2008: 10 days visiting raw material suppliers, China

2008 to 2011: meetings in Brazil with technicians and executives from India, Czech Republic and Germany and teleconferences every 15 days.

Infos

https://www.linkedin.com/in/gustavocvcastro/