Marcelo Caballero

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Aspiring AI Product Manager | Robotics

Senior leader with 10+ years of experience delivering AI, robotics and IoT products and managing CHF 100M program portfolios. Led strategic product development for the Thermomix kitchen robot ecosystem with 10M connected devices and more than 100k guided recipes, including multi-robot cooking concepts and embodied systems. Combines an MSc in Artificial Intelligence focused on embodied intelligence, robot morphologies and sensor integration with hands-on experience in defining customer-centric use cases and translating them into clear, execution-ready roadmaps and technical requirements. Experienced in creating connected IoT product and service portfolios, aligning research with market needs, integrating perception-to-action data flows into prototyping cycles and leading cross-functional teams from ideation to commercial launch.

CORE COMPETENCIES

AI Product Strategy & Robotics: Expertise in AI architectures, sensor integration, and embodied AI, translating advanced technical concepts into actionable product roadmaps

End-to-End AI Lifecycle Management: Comprehensive understanding from requirements definition and data pipelines to model design, training, deployment, and iterative user-driven improvements

Cross-Functional Technical Leadership: Ability to lead agile, multidisciplinary teams (engineering, UX, compliance) through ambiguous scenarios, delivering products in regulated environments

Rapid Prototyping & Technical Communication: Skilled at prototyping ML solutions and communicating complex technical insights to stakeholders, facilitating informed decisions and adoption

PROFESSIONAL EXPERIENCE

Independent AI Product & Research Work • Zürich and remote • 11/2024 – present

- Completed an MSc AI thesis on LLM limitations and defended it in Oct 2024. Extended the results into diagnostics for model reliability and evaluation, supporting Responsible AI adoption.
- Built tool-orchestration agent prototypes with experts using Python, Docker, and n8n to demonstrate end-to-end integration of assistant workflows, data pipelines, and inference services.
- Engaged with ETH Zurich, LAC Lucerne, and open-source communities to share applied research and provide reviews and feedback on conversational AI and evaluation.

V-Zug AG • Zug, Switzerland • 03/2022 - 05/2024

Digital Product Manager / AI Solutions Architect

- Launched AI-powered subscription services for 500k connected devices, translating complex data pipelines into user-facing applications, collaborating with engineering, UX, and compliance teams
- Initiated ML initiatives leveraging device and spare-part data, clearly defining technical feasibility and product constraints
- Coordinated roadmap priorities directly with engineering teams, ensuring technical readiness and alignment for future AI and ML expansions
- Implemented SAFe methodologies, reducing product time-to-market by 50%

Vorwerk International • Wollerau, Switzerland • 03/2016 - 04/2021

Senior Product Manager - connected Products (IoT/AI)

- Owned strategic product roadmaps for complementary connected kitchen devices for TM6, including robotic cooking scenarios, shaping early-stage planning and product evolution for TM7
- Delivered IoT-enabled kitchen innovations (e.g., smart thermometer, smart pan) internationally (UK, ES, US, AU), increasing customer interactions by 20%.
- Directed cross-functional teams across hardware, embedded software, cloud, and UX engineering, managing CHF 100M+ programs using agile methodologies.

- Spearheaded "Thermomix as a Service," integrating IoT hardware, personalized content, and subscription models into a GDPR-compliant platform.
- Filed patent for Multidevice Cooking, establishing a foundational platform for multi-robot coordinated cooking experiences.

EARLIER PROFESSIONAL EXPERIENCE

Enterprise-Scale Product & Technology Transformation

Lufthansa Systems (2002–2006) — Senior Consultant, ICT Strategy

Advised C-level executives and led IT transformation programs for regulated aviation environments, delivering compliance-aligned digital infrastructure and enterprise technology roadmaps.

Detecon (Switzerland) (2011–2013) — Senior Consultant, Enterprise Architecture

Designed and implemented enterprise architecture and digital transformation strategies for federal and enterprise clients, aligning IT modernization with governance and risk frameworks.

Digital Innovation, New Market Development & IoT Enablement

Swisscom (2008–2011) — New Business Development Manager

Launched digital service initiatives in telecom, growing vertical markets and building strategic partnerships; contributed to M&A due diligence for online business expansion.

Schaerer AG (2014–2015) — Business Development & Product Management Consultant

Defined IoT platform requirements and feasibility for predictive maintenance and remote diagnostics in connected commercial appliances.

Startup Incubator @McKinsey (2001–2002) — Business Consultant

Developed go-to-market strategies and market analysis for mobile commerce innovations, advising telecom clients on positioning and opportunity evaluation.

Technical Foundation and Early Career Engineering Roles

Cisco Systems (2000–2001) — Consulting Engineer

Provided enterprise solution architecture and wrote business cases for campus-mobile IP telephony

Siemens AG (1996–2000) — Strategy & Product Management Consultant

Completed Siemens Graduate Program, building business cases for 3G/UMTS and Powerline technologies; presented strategic rollout plans to telecom executives across Europe.

KEY AI PROJECTS & RESEARCH

On Artificial General Intelligence (Thesis Research)

- Modeled advanced embodied AI architectures and robotic morphologies, integrating LeCun's AMI theory for practical robot scenarios
- Developed risk frameworks emphasizing alignment, controllability, and ethical safeguards in autonomous agents

LLM Architecture & Interaction Research

- Critiqued prompt engineering's reliability by exposing structural divergences in tokenization, architecture, and scaling, showing prompt variability as an inherent model limitation
- Argued for integrating user interaction constraints into model architecture and tokenizer design upfront, shifting promptability from a fragile post-hoc task to a built-in system capability

Industrial AI: Manufacturing Intelligence (GIT Sample Project)

- Built ML pipelines to detect rare pattern anomalies, improving quality control accuracy by 20%
- Deployed predictive maintenance models using IoT data to optimize downtime and service intervals

Computer Vision: Identity Verification System

- Designed CNN-based pipelines (ResNet50V2, MobileNetV2, NASNetLarge) for identity validation
- Applied transfer learning and callbacks to optimize accuracy under resource constraints

NLP for Large-Scale Text Analysis

- Processed 7.5GB corpus for token frequency analytics and semantic pattern extraction
- Prototyped Python pipelines for efficient document processing and transaction record analysis

EDUCATION

MSc in Artificial Intelligence, Aalen University, Germany (2021–2024)

- Graduated with top honors (1.3). Thesis: "On Artificial General Intelligence" (graded 1.0), focusing on AGI architectures, interpretability, and safe alignment strategies.

MBA in Entrepreneurship, IE Business School, Spain (2006–2007)

- Specialized in technology innovation, product strategy, and new business creation.

B.Sc. in Industrial Engineering and Management
(Diplom Wirtschaftsingenieur), Wedel University of Applied Sciences, Germany (1994–1996)

- Focus on operations management, R&D process integration, and scalable product development.

B.Sc. in Computer Engineering
(Diplom-Ingenieur Technische Informatik) Hamburg Univ. of Applied Sciences, Germany (1988–1993)

- Specialized in software engineering, algorithm design, and foundational computing principles.

PROFESSIONAL DEVELOPMENT

IoT and Digital Ecosystems – CAS, Lucerne University of Applied Sciences and Arts (HSLU), 2021

- Explored IoT frameworks, ML-based services, and cross-functional ecosystem orchestration.

Artificial Intelligence: Implications for Business Strategy, MIT, 2018

- Focused on aligning AI technologies with strategic priorities and stakeholder needs.

Tackling the Challenges of Big Data, MIT, 2015

- Trained in data pipeline design, real-time analytics, and enterprise-scale data infrastructure.

Project Management Certification (PMP), ZHAW, 2015

- Covered agile product delivery, stakeholder communication, and risk-based prioritization.

Building New Businesses in Established Companies, Harvard Business School (HBS), 2010

- Studied innovation, product launch strategies, and market development in mature organizations.

FURTHER SKILLS

Technical Stack: Python (TensorFlow, PyTorch, ROS), Docker, Git, containerized ML workflows, analytics dashboards, API integration

Product & Delivery: Agile (Scrum, SAFe), strategic roadmapping, cross-functional leadership, enterprise pilots, stakeholder alignment, KPI tracking, PRD ownership

AI & Data: Prompt engineering, LLM prototyping, ML feature design, statistical modeling, data visualization, model evaluation concepts

Tools & Platforms: Jira, Confluence, Salesforce, Looker Studio, Grafana, Miro, VS Code, basic cloud service use (GCP, Azure, AWS)

Languages: English (C1), German (C2), Spanish (C2)

WHAT SETS ME APART

My profile is shaped by three elements that are directly relevant for robotics teams. First, MSc level work on embodied intelligence and robot learning, which gives a precise vocabulary for perception, control and morphology topics. Second, responsibility for connected products in the field, including the Thermomix kitchen robot with 10M devices where reliability, updates and service are part of daily operation. Third, a strategy and transformation background that links robotics roadmaps to budgets, risk and measurable outcomes.

Reference decks: (1) ML: Neural Network for 3D shape detection, (2) AI Swiss Post, (3) J&J E&PS Digitale Transformation, (4) AI Security for LLMs, (5) Swiss Re: GenAI Underwriting Assistant, (6) Next-Gen Legal AI Platform

On Artificial General Intelligence (AGI):

Defining intelligence, exploring architectures, and addressing core challenges from embodiment through brain-inspired systems, over open vs. closed approaches, to societal impacts

Master Thesis

in the study program

Master of Science Artificial Intelligence

at Graduate Campus University Aalen

Name:	Marcelo Caballero
Matriculation Nr:	85674
First Assessor:	Prof. Dr. Sigurd Schacht
Second Assessor:	Prof. Dr.-Ing. Carsten Lanquillon
Date:	15th of October 2024