Clara Matos

email | linkedin | github | website

Experience

SWORD Health — Porto, Portugal

Director of Applied AI — *2025 - Present*

Head of Applied AI — *2022 - 2025*

Lead AI Engineer — *2019 - 2022*

- Hiring, mentoring and scaling the Applied AI team from 3 to 20+ members; currently leading 3 sub-teams.
- Established the technical strategy and operating model that enables consistent delivery of production-grade AI features.
- Post-training (SFT/RLHF/RLAIF) of LLMs on anonymized proprietary health data, optimized to maximize clinical outcomes.
- Built Gondola, a human-feedback platform powering evaluation cycles.
- Designed and launched the 10+ AI features (summarization, structured data extraction, recommendation, etc) behind the AI Feed, Sword's core care-management system that supports clinical decision-making, engagement, and administrative workflows, supporting scale without compromising quality of care.
- Built Phoenix, a clinically safe, context-aware, and engaging voice agent (built by combining STT, LLM and TTS models) that guides therapy sessions and sustains member engagement.
- Created the AI Care Coordinator, which independently resolves 60% of incoming member support tickets across email, chat, and SMS.
- Co-organized and presented at the Sword AI Summit in 2024, with 700+ attendees.
- Co-inventor of 2 patents.

Senior Algorithms Engineer — *2017 - 2019*

Algorithms Engineer — *2015 - 2017*

- Developed human motion tracking and analysis models that have already powered 7M+ AI Care Sessions.
- Created an application to debug algorithms with offline data, used for evaluating updates and supporting production issues.
- Built a data analytics platform to assess the performance of motion tracking and analysis models in production to track quality metrics over time to guide improvements prioritization.
- Co-inventor of 10 patents.

INESC-TEC — Porto, Portugal

Research Assistant — *Feb 2015 - Sep 2015*

- **Master Thesis:** Human Motion Analysis in Video Sequences for Telerehabilitation Systems.
- Final Score: 18/20.
- Developed a skeleton tracking system using as input point clouds generated from stereo images.
- The skeleton positions were identified using pixel-wise body part labeling by training a Random Decision Forest.
- The detection accuracy was improved by using kinematic and temporal constraints.
- Tools: OpenCV, PCL

Politecnico di Milano — Milan, Italy

Research Trainee — *Mar 2014 - Jul 2014*

- **Project:** Dynamic modeling of the body surface.
- Evaluation of the deformation of the skin in the elbow articulation during its movement.
- Project under a collaboration between CARTCASLab and the Department of Aeronautics and Astronautics of MIT for the development of the BioSuit.

Education

OxML — Virtual

Oxford Machine Learning Summer School — *August 2021*

OxML offered 70+ hours of lectures including 12 hours of ML fundamentals and 58 hours of advanced topics in ML theory

Faculdade de Engenharia da Universidade do Porto Porto, Portugal
Master's degree in Bioengineering - Biomedical Engineering *Sep. 2010 – Sep. 2015*

Relevant coursework: Computer Aided Diagnosis, Biomedical Image Analysis, Algorithms and Data Structures, Information Systems Engineering, Signals and Electronics, Physiological Signal Processing.

Independent Coursework

Generative AI with Large Language Models, DeepLearning.AI, Coursera, 2024
Machine Learning Data Lifecycle in Production, DeepLearning.AI, Coursera, 2023
Structuring Machine Learning Projects, DeepLearning.AI, Coursera, 2023
Machine Learning Engineering for Production (MLOps) Specialization, Coursera, 2021
Full Stack Deep Learning, 2021
MIT 6.041 Probabilistic Systems Analysis and Applied Probability, MIT, 2020
MIT 6.S191, Introduction to Deep Learning, MIT, 2020
COMS W4995 Applied Machine Learning, Columbia, 2020
Mathematics for Machine Learning: Specialization, Coursera, 2020
MIT 18.06 Linear Algebra, MIT, 2019
CS229 Machine Learning, Stanford, 2019
Machine Learning, Stanford, Coursera, 2019
Algorithms Part I and II, Princeton, Coursera, 2019

Selected Patents

A. Matos, D. Gonçalves, D. Paços, V. Bento, J. Pereira, F. Rodrigues, I. Gabriel. "Personalized recommendations in a digital therapy platform." US20250273351A1, February 2024.

For the complete list of 10+ patents, see here.

Selected Talks

How We Are Building Phoenix, an AI Care Agent, InfoQ Dev Summit Munich, October 2025.
Lessons Learned From Shipping AI-Powered Healthcare Products, QCon London, April 2025.
Lessons Learned From Shipping AI-Powered Healthcare Products, Sword AI Summit, November 2024.
$e^{(AI)}$: Growing an AI culture amidst exponential growth, Data Makers Fest, October 2023. [Video]

Students and Mentorship

Co-advised M.Sc. theses, Faculdade de Engenharia da Universidade do Porto:
Machine Learning Improvements to Human Motion Tracking (2020) – Pedro Ribeiro
Human Motion Analysis Using Inertial Sensors for Rehabilitation Purposes (2018) – Beatriz Oliveira
Gait Analysis and Rehabilitation using Inertial Sensors (2017) – Patrícia Loureiro Rodrigues

Open Source Contributions

scikit-learn: See my contributions here.

Technical Skills

Programming: Java, Python, SQL, OOP, TDD
Data & ML: Pandas, NumPy, SciPy, scikit-learn, TensorFlow, TFX, unsloth, LangChain, LangGraph
ML Practices: LLMs, Evaluation, Data Science / Machine Learning / Deep Learning, MLOps, A/B Testing
Frameworks & Tools: FastAPI, Pydantic, Git, DVC, Great Expectations
Cloud & Infrastructure: Azure, GCP, Docker, Kubernetes
Core Foundations: Algorithms, Linear Algebra

Language Skills

Portuguese: Native speaker. English: Fluent. Italian: Basic.

Interests

Reading, Traveling, Hiking, Music Festivals

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