

Stefano Giannini

AI Engineer & Physicist

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[GitHub](#) | [LinkedIn](#) | [Personal Website](#)

ABOUT ME

AI Engineer and Physicist with over 5 years of experience developing high-performance intelligent systems. Proven track record in translating multi-disciplinary physical and computational data (ranging from nanotechnology and quantum simulations to financial time-series and healthcare wearables) into automated, production-ready solutions. Expert at bridging the gap between advanced physical systems and state-of-the-art machine learning architectures. Always try to improve myself, the environment around me and the systems I build.

PROFESSIONAL EXPERIENCE

Fairfield Marketplace

Full-Stack Developer & AI Engineer

Remote

Apr 2025 – Apr 2026

- Architected, evaluated, and deployed production-grade autonomous AI Agent workflows leveraging the Anthropic API and LangChain to automate complex business logic execution.
- Leveraged next-generation agentic developer toolchains, including **Claude Code** and **Amazon Q / Kiro**, to orchestrate terminal-driven software manipulation, autonomous multi-file code transformations, and highly accelerated developer refactoring workflows.
- Led the programmatic refactoring of legacy distributed software architectures, substantially minimizing computational bottlenecks and optimizing backend task performance under heavy concurrent data loads.
- Engineered highly scalable data ingestion and automation pipelines designed for data-intensive processing tasks, reducing overhead and streamlining internal workflows.

Sky Ray Capital

Senior Data Scientist

Remote

Mar 2024 – Apr 2025

- Designed and optimized complex algorithmic investment portfolios utilizing cutting-edge deep learning architectures and multi-variable financial time-series analysis.
- Developed and deployed an automated end-to-end investment management system featuring real-time, low-latency microservices and automated user notification dispatching.
- Integrated hardware-accelerated processing frameworks including CuDF, Numba, and PyTorch to enable rapid, massively parallel execution of financial models over large-scale datasets. Automatic differentiation (JAX), and optimization were heavily used to optimize processes and models.

Amaris Consulting (for Stellantis)

Mid-Senior Data Scientist – Advanced Automotive R&D

Orbassano, Italy

Sep 2022 – Nov 2023

- Spearheaded the core machine learning efforts for the *Emotional AI Project*, building state-of-the-art Natural Language Processing (NLP) models utilizing DistilBERT, GPT-2, and OpenAI APIs for next-generation in-cabin user experience customization.
- Developed and validated highly responsive audio emotion detection systems (utilizing TIM-Net) alongside robust video activity classification systems for real-time sensor streams.
- Designed and prototyped full-stack graphical user interfaces (GUIs) using Qt and ImGui frameworks to demonstrate live, context-aware vehicle intelligence features to stakeholders.

SmAirtHero

Data Scientist

Turin, Italy

Nov 2019 – Jun 2021

- Developed core digital signal processing and predictive models for a healthcare wearable device, focusing on critical biophysical event extractions such as fall detection, sleep profiling, and REM phase isolation.

- Managed end-to-end Extract, Transform, Load (ETL) data engineering pipelines using PySpark and Apache Cassandra NoSQL databases for high-throughput sensor telemetry.
- Implemented automated batch and streaming analytics workflows on Microsoft Azure Cloud to process individual user data metrics at scale, exposing insights via custom Streamlit and Plotly.js dashboards.

EDUCATION

Stockholm University Stockholm, Sweden
 Master of Science in Nanotechnology 2024

- Master’s Thesis: *Design and Optimization of Superconductive Devices*.

Politecnico di Torino Turin, Italy
 Master of Science in Nanotechnology 2021 – 2025

- Focus on solid-state physics, advanced microfabrication methodologies, and quantum computing frameworks.

University of Turin Turin, Italy
 Bachelor of Science in Experimental Physics 2016 – 2021

- Rigorous foundation in classical/quantum mechanics, laboratory instrumentation, and in ordinary/partial differential equation .

PUBLICATIONS & RESEARCH

- **S. Giannini**, et al., “Delay-insensitive Superconducting AND Gate,” Stockholm University, 2025. (*Manuscript in preparation*).
- “Algorithmic applications on personal healthcare devices,” University of Turin, 2020.
- “Exploring the Perceived Cognitive Load,” University of Turin, 2024.

TECHNICAL SKILLS

- **Programming & Frameworks:** Python, Rust, C++, MATLAB, Java, SQL, PyTorch, LangChain, Claude Code, Amazon Q (Kiro), CuDF, Numba, PySpark, React.js, Qt, imGui.
- **Physics & Nanofabrication:** Cleanroom Micro/Nanofabrication, Photolithography, DC-Magnetron Sputtering, Quantum Cellular Automata (QCA) Simulation, Analog/Digital Signal Processing, Fourier Analysis.
- **Data Science & AI:** Deep Learning, Reinforcement Learning, Computer Vision (OpenCV), NLP, Time-Series Forecasting, Statistical Modeling, Generative AI, Amazon SageMaker, Azure.

SELECTED ACADEMIC PROJECTS

Chilab Laboratory (Chivasso, Turin) 2022
Hands-on Device Fabrication: Executed comprehensive cleanroom protocols for micro-device manufacturing, utilizing advanced photolithography techniques, chemical etching, and thin-film characterization.

Politecnico di Torino (Collaborative Projects with Bosch) 2023
Novel Fall & Gas Detection Algorithms: Developed and calibrated embedded ML models directly integrated with physical MEMS hardware (Nicla Sense ME), optimizing low-power sensory edge computing for both hazardous gas classification and dynamic motion fall detection.