Mario Grandi

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LinkedIn — GitHub — Website

PROFESSIONAL SUMMARY

Senior Data Scientist with 6+ years of experience spanning AI systems, statistical modelling, and large-scale scientific computing (CERN ATLAS). Proven track record delivering production ML systems across healthcare, fintech, renewable energy, and public sector analytics. Specialized in agentic AI architectures, anomaly detection, and high-performance model deployment. Passionate about building intelligent systems that drive measurable impact.

SELECTED AI PROJECTS

Agentic Financial Forensics Platform
Architected and deployed a production-ready agentic AI system for forensic accounting analysis. Designed retrieval-augmented and context-aware generation pipelines to extract structured financial insights from unstructured reports. Implemented persistent memory mechanisms and automated anomaly-detection checks for continuous financial monitoring.

Pregnancy Risk Prediction System
Developed and validated supervised learning models to predict pregnancy outcomes in rural healthcare settings. Built data pipelines and interactive dashboards (Tableau) to support analysts and clinicians, achieving 90% cross-validated accuracy and high precision on positive outcome classification.

High-Performance Physics Tracking Algorithm (CERN ATLAS)
Designed C++/Python algorithms for high-throughput experimental data processing, improving computational efficiency by $15\times$. Contributed to peer-reviewed publications within the ATLAS collaboration (100+ citations).

PROFESSIONAL EXPERIENCE

Freelance Data Scientist   Apr 2025 – Present
Transparently.AI — Singapore

- Designed and deployed a production-grade agentic AI system for forensic accounting analysis in a startup environment.
- Built RAG-based data extraction pipelines converting unstructured financial documents into structured analytical outputs.
- Implemented automated statistical anomaly detection with adaptive baselines for real-time financial monitoring.
- Contributed to AI architecture decisions and system scalability planning.

Data Analyst   Sept 2024 – April 2025
Terre Innovative Healthcare — Remote (part-time)

- Developed AI-driven analytics solutions for pregnancy and maternal health data in low-resource settings.
- Built predictive models and validation frameworks to improve outcome forecasting.
- Delivered executive-facing dashboards and reports to inform healthcare interventions.

Research & Analytics Lead   May 2023 – Jun 2024
QA-UK Ltd — London, UK

- Led data science and R&D initiatives applying ML and simulation modelling to renewable energy optimization problems.

- Deployed ML workloads on AWS Batch and HPC infrastructure, reducing computational cost by 40%.
- Communicated complex modelling insights to investors and executive stakeholders, supporting extended funding.

Statistical Production Analyst (Development Lead)   Sept 2022 – Mar 2023
Office for National Statistics — London, UK
- Led development of finance and service trade data processing systems, significantly improving validation accuracy and reducing processing inefficiencies.
- Enhanced Bayesian and sampling methodologies to improve statistical robustness.
- Collaborated across engineering and policy teams to deliver analytical solutions ahead of schedule.
- Utilized big data technologies, including Hadoop, to scale processing workflows.

Postdoctoral Research Fellow   Aug 2021 – Aug 2022
University of Sussex / CERN ATLAS — UK & Switzerland
- Developed high-performance data processing algorithms in C++ and Python for large-scale physics experiments ($15\times$ efficiency improvement).
- Applied machine learning frameworks (scikit-learn, TensorFlow) to experimental modelling challenges.
- Mentored postgraduate researchers on ML optimisation and experimental design.

PhD Researcher (Particle Physics)   Sept 2017 – Jul 2021
University of Sussex / CERN ATLAS — UK & Switzerland
- Designed statistical models and predictive algorithms to enhance experimental sensitivity by 70
- Built automated data analysis pipelines for large-scale distributed computing environments.
- Contributed to peer-reviewed publications within the ATLAS experiment (100+ citations).

EDUCATION

PhD, Particle Physics — University of Sussex   2017 – 2021
MPhys, Physics & Astrophysics (First Class Honours) — University of Sussex   2013 – 2017

TECHNICAL SKILLS

Programming: Python, C++, SQL, Bash
AI & Machine Learning: PyTorch, TensorFlow, scikit-learn, RAG systems, Anomaly detection, Bayesian modelling
Data & Analytics: Experimental design, A/B testing, Survey sampling, Predictive modelling
Cloud & Infrastructure: AWS (Batch, S3), HPC, Hadoop
Deployment & Tools: Git, CI/CD, REST APIs, Tableau, Linux
Visualisation: Tableau, Plotly, matplotlib
Soft Skills: Presentation, Communication, Ability To Learn, Teamwork, Leadership
Tools & Platforms: Microsoft Office Suite, Linux, LaTeX, Jupyter, Virtual Environments (Anaconda, pip, uv)

ADDITIONAL INFORMATION

Languages: English (Fluent), Italian (Fluent), French (Advanced), Spanish (Intermediate)
Interests: Rugby, 3D Printing, Strategy Games, Cooking