

GIOVANNI BOCCHI

Born 26 March 1986, Italian/Australian nationality

Via Adelchi Negri 8,
25030 Coccaglio, Brescia, Italy
Tel. +39 349 4346732

e-mail. giovanni.bocchi@gmail.com

Linkedin: <http://www.linkedin.com/in/giovannibocchi>

Portfolio: <https://giova86.github.io/Portfolio/index.html>

EDUCATION

- February 2017 **Ph.D.** in “Nuclear Physics” at the University of Milan.
- April 2013 **Master’s Degree** in “Nuclear Physics” at the University of Milan, 110/110 *cum laude*.
- April 2010 **Bachelor’s Degree** in “Physics” at the University of Milan, 105/110.

RESEARCH ACTIVITIES

- December 2016 **University of Milan, Milan, Italy – Ph.D. Thesis:**
Interplay between single particle and core excitations: γ -ray spectroscopy of low-lying states in $^{41,49}\text{Ca}$ and ^{133}Sb nuclei
- Study of various statistical models aimed at measuring the mean lifetime of excited nuclear states.
 - Development of a mathematical model and subsequent implementation of a code describing the interaction between macroscopic (collective) motion and individual degrees of freedom.
- April 2013 **University of Milan, Milan, Italy – Master’s Thesis:**
Study of Particle-Vibration coupled states in the ^{65}Cu nucleus, via the reaction $^7\text{Li} + ^{64}\text{Ni}$
- Study of a statistical model aimed at analyzing the mean lifetime of excited nuclear states.
 - Theoretical analysis and subsequent development of a code for the interpretation of excited states within the particle-vibration coupling (PVC) scheme.
- April 2010 **University of Milan, Milan, Italy – Bachelor’s Thesis:**
 γ -ray spectroscopy in $A \sim 50$ mass nuclei via heavy-ion transfer reactions:
- Characterization of the gamma-ray detection apparatus.
 - Statistical study of the angular distribution of gamma radiation emitted following the de-excitation of reaction products.

WORK EXPERIENCE

- Jan 2019 – Present Head of Data Science and AI Researcher at Kiwi Data Science
- Jan 2017 – Dec 2018 Data Scientist at Kiwi Data Science
- Jan 2017 – Dec 2018 Exclusive Italian Minitab Trainer (certified)
- Jan 2014 – Dec 2016 Ph.D. Candidate at the University of Milan, Department of Physics, Nuclear Physics Section
- Jan 2005 – Present Private tutor of mathematics and physics for middle school, high school and university students
- 2013 – 2016 Teaching Assistant at the University of Milan, Department of Biology.
Tutor and lab instructor for the “Physics and Physics Laboratory” course of the Bachelor’s Degree in Biology at the University of Milan.
- Apr – Sep 2013 Research Fellow at the University of Milan, Department of Physics

SKILLS

Machine learning

Professional knowledge of machine learning theory gained through work experience:

- Decision Tree
- Random Forest

Autorizzo il trattamento dei dati personali contenuti nel mio curriculum vitae in base art. 13 del D. Lgs. 196/2003.

- Support Vector Machine
- Deep Neural Network
- ARIMA
- K-Means
- KNN
- DBSCAN
- Linear and Logistic Regression
- Ensemble Methods and Neural Networks (Deep Learning)
- Principal Component Analysis (PCA) and Hierarchical Clustering
- SARIMA, Prophet and Exponential Smoothing for time-series forecasting
- Computer Vision (OpenCV, Mediapipe) and Natural Language Processing (NLP)

LLM

- Use of cloud-based language models, such as those provided by OpenAI, for text generation, data analysis and decision-support tasks.
- Fine-tuning: adapting generated responses and content to the specific needs of the project or company.
- Implementation of pre-trained models to improve operational efficiency and quality of work.
- Management and operation of on-premise language models such as LLAMA, integrating natural language processing capabilities directly into company infrastructure.
- Model customization through fine-tuning to tailor them specifically to organizational needs.
- Implementation of Retrieval Augmented Generation (RAG): knowledge of optimizing large language model (LLM) output through the integration of authoritative external knowledge bases. Ability to configure and manage processes that let models reference specific knowledge bases without retraining.
- Development of AI agents and orchestration of tools and skills through frameworks such as Langchain and n8n, managing decision loops and prompt engineering.
- Use of local language models via Ollama and Open WebUI, and open-source models sourced from the HuggingFace hub.
- Use of Anthropic's Claude models for generation, analysis and software development assistance tasks.

Statistics

Professional knowledge of statistical theory (descriptive, mathematical and inferential) gained through academic study and as an official Minitab trainer, with particular interest in industrial applications:

- | | |
|----------------------------------|-------------------------|
| • Design of Experiments (DOE) | • Control charts |
| • Analysis of Variance (ANOVA) | • Multivariate analysis |
| • Simple and multiple regression | • Reliability analysis |
| • Process capability analysis | • Gage R&R |
| • Statistical quality control | • Sampling methods |

Communication

- *Excellent* oral communication skills gained through experience as a certified Minitab trainer.
- *Excellent* oral communication skills gained through numerous oral presentations at international conferences and through university teaching. Written communication skills developed through writing scientific articles, abstracts and conference proceedings.

Computer Skills

- *Professional* knowledge of Minitab software.
- *Professional* knowledge of Spotfire (TIBCO) software.
- *Professional* knowledge of the Tkinter, Streamlit and Dash libraries.
- *Professional* knowledge of the Python and R programming languages.
- *Professional* knowledge of Wolfram Mathematica and MatLab software.
- *Professional* knowledge of JSReport reporting software.
- *Professional* knowledge of SQL.
- *Professional* knowledge of the Git version control system.
- *Excellent* knowledge of the PySpark, SparkSQL and MLlib libraries.
- *Excellent* knowledge of the TensorFlow and Keras libraries.
- *Excellent* knowledge of the OriginPro and QtiPlot data analysis software.

- *Good* knowledge of KNIME software.
- *Good* knowledge of the C/C++ programming languages.
- *Excellent* knowledge of the Windows, Linux and macOS operating systems.
- *Excellent* knowledge of the Fortran programming language.
- *Excellent* knowledge of the LaTeX.
- *Professional* knowledge of Word, Excel, PowerPoint, and Internet browsers.
- *Basic* knowledge of AutoCAD (2D) design software.
- *Professional* knowledge of the scikit-learn and PyTorch machine learning libraries.
- *Professional* knowledge of the OpenCV and Mediapipe computer vision libraries.
- *Professional* knowledge of the Matplotlib, Seaborn, Plotly and Altair data visualization libraries.
- *Professional* knowledge of PostgreSQL and MongoDB databases, and the Chroma and Qdrant vector databases.
- *Professional* knowledge of LLM tools such as Langchain, LM Studio, Claude Code, Ollama, Open WebUI, HuggingFace and n8n.
- *Professional* knowledge of the Dart language and Flutter framework for mobile development (Android Studio, Xcode).
- *Professional* knowledge of DevOps and collaboration tools: Docker, GitHub, Bitbucket and Jenkins.
- *Professional* knowledge of HTML and CSS, and Power BI and QlikSense business intelligence tools.

Nuclear Physics

- Nuclear reaction mechanisms.
- Nuclear structure studied through gamma spectroscopy and particle detection.
- Knowledge of Radiation Protection and Radiobiology

Experimental Skills

- Knowledge of detection systems for gamma rays, neutrons and charged particles. Characterization of LaBr₃(Ce) scintillation detectors and HPGe and silicon semiconductor detectors.
- Use of various techniques for measuring the mean lifetime of excited nuclear states.
- Participation in experimental campaigns at various national and international laboratories.
- Development of programs and algorithms for the simulation of experimental data and statistical analysis.

PERSONAL PROJECTS

COSMOS	Multi-agent web platform based on LLMs (Ollama, LM Studio, OpenAI) for orchestrating cooperating AI agents. url: https://giova86.github.io/Portfolio/projects/cosmos-web-application.html
LLM WIKI	Personal second brain based on Andrej Karpathy's guidelines, built with local language models (Ollama/LM Studio). url: https://giova86.github.io/Portfolio/projects/llm-wiki-web-application.html
PASSAPRONT0	Solution that monitors passport appointment availability on the Italian State Police website in real time, sending notifications via Telegram or email. url: https://giova86.github.io/Portfolio/projects/passapronto.html

The complete list and detailed description of my personal projects is available online in my portfolio: <https://giova86.github.io/Portfolio/index.html>

TRAINING & CERTIFICATIONS

June 2025	Building RAG Apps Using MongoDB (MongoDB)
June 2025	MongoDB Schema Design Patterns and Antipatterns Skill Badge (MongoDB)
October 2022	TCA-TIBCO Spotfire (Certified Associate)
October 2022	TCP-TIBCO Spotfire (Certified Professional)
October 2022	TCD-TIBCO Spotfire (Certified Developer)
January 2022	Spark and Python for Big Data with PySpark, Udemy
December 2018	Python for Data Science and Machine Learning Bootcamp, Udemy
October 2018	Deep Learning, a 5-course specialization by deeplearning.ai on Coursera

November 2017	Minitab 18 Trainer Certification
August 2015	Euroschool on Exotic Beams, Dubrovnik, Croatia
May 2015	INFN School of Statistics, Ischia, Italy

PUBLICATIONS & PRESENTATIONS

Articles	In recent years I have been author and co-author of several articles published in international peer-reviewed scientific journals.
Oral Presentations	I have taken part in numerous international seminars and conferences with oral presentations. As a Minitab Trainer, I speak at workshops and conferences on data science and, more broadly, on the use of artificial intelligence in industry.
Posters	I have presented two scientific posters at international conferences.

LANGUAGE SKILLS

ITALIAN:	Native
ENGLISH:	Professional (spoken, reading and writing)

ADDITIONAL INFORMATION

- Driving licence: B
- Active member since 2020 of the “Risvegliati VIP Brescia” therapeutic clowning association, contributing to patients’ well-being through humor and playful interaction as therapeutic tools.
- Passionate about drawing and digital painting; some works are visible on Instagram (@blacknote86).
- Go player (碁), a strategic game I play for the pleasure of creative thinking.
- Chess enthusiast, playing regularly to train logic and planning skills.