

Rasoul Samei

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SUMMARY

Data Scientist with expertise in machine learning, data analysis, and visualization. Currently contributing to clinical and epidemiological research at Istituto Mario Negri and previously developed a high-impact anomaly detection system at The Openwork Partnership. Recently built a chatbot using LangChain, leveraging large language models and retrieval techniques to enhance user interactions. Proficient in Python, R, SQL, Power BI, and SparkSQL, with experience designing KPIs and building dynamic reports to drive strategic decision-making. Holds a Master's in Economics and Data Analysis, with a goal of advancing as a full-stack data scientist.

PROFESSIONAL EXPERIENCE

ISTITUTO DI RICERCHE FARMACOLOGICHE MARIO NEGRI

Ranica, Italy

Data Scientist

2024 – Present

- Developed and validate predictive models to support clinical and epidemiological research.
- Designed and implement workflows for processing and analyzing clinical trial data.
- Collaborated with multidisciplinary teams to translate data insights into actionable healthcare strategies.
- Contributed to a multicenter JAMA study (SOFA-2 Score, 2025) through data analysis, statistical modeling, and manuscript review.

THE OPENWORK PARTNERSHIP

Swindon, United Kingdom

Data Scientist Intern

2023 – 2024

- Developed an end-to-end Anomaly Detection system using unsupervised machine learning techniques within Azure ML Studio, leveraging Python SDK2 for pipeline integration and automation.
- Utilized SQL in Azure Synapse Analytics for managing and analyzing large datasets, extracting trends, insights and developed more than 28 KPIs to support strategic decisions.
- Created dynamic reports and dashboards in Power BI, translating complex data into accessible and actionable insights.

UNIVERSITY OF BERGAMO

Bergamo, Italy

Machine Learning Tutor

2023 – 2023

- Conducted group tutoring sessions emphasizing the practical applications of machine learning algorithms, enhancing students' hands-on skills.
- Provided comprehensive assistance to students on assignments, projects, and exams, focusing on machine learning and data analysis to bolster academic success.
- Cultivated a collaborative learning environment and offered technical support, ensuring students effectively grasped complex concepts and tools.

Selected Project Experience

- Chatbot with LangChain
 - Developed and deployed a chatbot using LangChain, integrating large language models for natural language understanding. Designed modular prompts and conversational workflows, applying retrieval techniques to improve accuracy and user experience.
- Time Series Anomaly Detection for Industrial Machinery
 - Engineered a time series anomaly detection tool for monitoring industrial machinery, utilizing both supervised and unsupervised learning models to pinpoint irregularities in sensor data at a 40Hz frequency, culminating in an ensemble approach for prompt malfunction alerts and reduced equipment downtime.
- Product Recommendation System with Sentiment Analysis
 - Developed a nuanced product recommendation engine by conducting sentiment analysis with supervised learning techniques on customer reviews. Integrated Surprise library for behavior-based personalization and content-based filtering to enhance recommendation precision by factoring in sentiment scores and user-product interactions.

TECHNICAL SKILLS

Programming Languages: Python, R, SQL

Machine Learning: Scikit-learn, H2O, TensorFlow

Version Control: Git

Conversational AI & LLMs: LangChain, Chatbot development, Prompt design

Automation & Workflow Tools: n8n, Azure ML Studio

Data Analysis Tools: Power BI, Excel, Pandas, Matplotlib, NumPy

Big Data Technologies: PySpark, SparkSQL

Agile & Project Management: Scrum framework, Sprint planning

EDUCATION

Università degli Studi di Bergamo
Master of Arts in Economics and Data Analysis

Bergamo, Italy

IAU of Neyshabur
Bachelor of Arts in Business Management

Neyshabur, Iran

PUBLICATIONS & PRESENTATIONS

- **Ranzani OT, et al. (contributing author: Samei R).** Development and Validation of the Sequential Organ Failure Assessment (SOFA)-2 Score. *JAMA*. 2025 Oct 29. doi:10.1001/jama.2025.20516.
Contribution: data acquisition, analysis and interpretation; statistical analysis; critical review of the manuscript.
 - **Samei R,.** Anomaly Detection in Financial Advisory Services: A Machine Learning Approach for Mortgage Conduct of Business Advisers. *Proceedings of ICSEM 2025: XIX. International Conference on Statistics, Econometrics and Mathematics*, July 2025 (Published Abstract).
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ADDITIONAL INFORMATION

- **Interpersonal Skills:**
 - Demonstrated problem-solving and adaptability in fast-paced environments.
 - Proven ability in team collaboration and conflict resolution.
- **Languages:** Persian (Native), English (Proficient), German/Italian/Arabic (Basic)
- **Awards:** First Place at the Stat-Hackathon Competition, Università degli Studi di Bergamo, May/June 2021
 - Excelled in advanced analytics, feature selection techniques (PCA, MCA, FAMD), model selection, and data presentation using 3 different tools (e.g. Python, R, and SAS).

ADDITIONAL EXPERIENCE

Professional Guitar Performer and Instructor, 2010 – 2021

- Engaged audiences and students in musical performances and instruction, honing communication, pedagogy, and audience engagement skills.