GIOVANNI ROSA, PHD

AI Engineer @ Technology Reply

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PROFILE

Passionate AI Engineer with extensive experience in both software development and scientific research. I love to solve complex problems with efficient, cutting-edge solutions, bridging technical and scientific expertise to drive innovation. I am very ambitious, always aiming at the top, but to achieve great things it is fundamental to work together with great people. My background includes not only software development, data science, and machine learning, but also precious soft skills earned during my PhD: Mentoring, public speaking, problem-solving, and critical thinking.

AREAS OF EXPERTISE

Scikit-Learn - OpenAI - GenerativeAI - Prompt Engineering - NLP - Clustering - RAG - LangChain - R&D - Git - FastAPI - TypeScript - Postgres - Ionic - Angular 8+ - SpringBoot - REST API - Kubernetes - Python - Android - Tensorflow - GATT - HTML/CSS - JavaScript - NLTK - HuggingFace - Elasticsearch - Web crawling - Docker - Linux - Bash - Machine Learning - CI/CD - Scientific writing

WORK EXPERIENCE

AI Engineer *(Technology Reply)*   **Italy**, 02/2024 – present

- R&D of Machine Learning and GenAI techniques to improve the software development cycle and IT infrastructure operations.
- My day-to-day activities include the identification of critical business use cases in which GenAI or ML-based solutions can be leveraged to solve them.

Machine Learning Research Engineer *(UNIMOL)*   **Italy**, 04/2023 – 10/2023

- Served as machine learning scientist in the Nova Tellus project (funded by the EU), a novel system supporting agricultural practices via big data analytics and machine learning.
- Development and validation of a set of ML algorithms, working with sensor data, to support precision agriculture practices.

Software Engineer *(Freelancer)*   **Italy**, 11/2020 – 01/2021

- Design and development of a life-saving mobile app to call nearby BSLD operators in case of heart-related emergencies.
- Implemented the mobile app, admin panel, and real-time notifications for immediate response during the emergencies.

Machine Learning Research Engineer *(UNIMOL)*   **Italy**, 04/2019 – 10/2020

- Served as machine learning scientist in the ATTICUS project (funded by the EU), an IoMT system for the monitoring and early detection of health anomalies.
- Development and validation of several machine-learning approaches to detect health-related anomalies, a mobile app, and the CI/CD of all the system components (*i.e.*, backend, frontend, database, DSS, and ML services).

Software Engineer *(Freelancer)*   **Italy**, 03/2020 – 04/2020

- Design and development of a chatbot, fine-tuned on scientific articles to answer questions on COVID-19, to serve as a reliable source of information to mitigate the diffusion of fake news.
- Implemented a Q&A pipeline using BERT and Flask.

Software Engineer *(Freelancer)*   **Italy**, 02/2019 – 04/2019

- Design and development of a search engine specifically designed to easily retrieve court decisions.
- The system includes a simple ETL pipeline for the ingestion of the documents served via Elasticsearch.

EDUCATION

PhD in Software Engineering, *Graded as "Excellent" with European PhD Award*   **University of Molise, Italy**, 11/2020 - 04/2024

- Research activities focused on the quality and maintenance of Docker artifacts, aimed at proposing new approaches and guidelines for developers to support them during the development activities.
- Served as teaching assistant for the machine learning and programming courses, including the mentoring of 15+ students during their thesis projects
- Co-authored 20+ research papers involving applied machine learning, empirical studies, software testing and maintenance. I actively contributed to the research community by serving as a reviewer and PC member, and presenting my research to 7 different international conferences.

Visiting PhD student, *Universidad Rey Juan Carlos*   **Madrid, Spain**, 11/2022 - 02/2023

Visiting student, *USI Università della Svizzera Italiana*   **Lugano, Switzerland**, 03/2020 - 04/2020

Master's degree in Security of Software Systems, *110/110 (cum laude)*   **University of Molise, Italy**, 10/2018 - 10/2020

Visiting student, *UCL Univeristy College of London*   **London, United Kingdom**, 04/2018 - 06/2018

Bachelor's degree in Computer Science, *110/110 (cum laude)*   **University of Molise, Italy**, 10/2015 - 12/2018

SELECTED PUBLICATIONS

C1. **Rosa, G.**, Mastropaolo, A., Scalabrino, S., Bavota, G., and Oliveto, R. (2023, May). Automatically Generating Dockerfiles via Deep Learning: Challenges and Promises. *In 2023 IEEE/ACM International Conference on Software and System Processes (ICSSP) (pp. 1-12)*. IEEE.

J2. **Rosa, G.**, Scalabrino, S., Bavota, G., and Oliveto, R. (2023). What Quality Aspects Influence the Adoption of Docker Images?. *ACM Transactions on Software Engineering and Methodology, 32(6)*, 1-30

J1. Guglielmi, E., **Rosa, G.**, Scalabrino, S., Bavota, G., and Oliveto, R. (2024). Help Them Understand: Testing and Improving Voice User Interfaces. *ACM Transactions on Software Engineering and Methodology*