Gabriele Morello

www.morello.rocks ❖ Stockholm, SE

WORK EXPERIENCE

Naha   Jan. 2024 – Jun 2024
Co-Founder & CTO   *Stockholm, SE*
  Fashion-tech startup, incubated at KTH Innovation Batch 19
- Developed the marketplace with Svelte, FastAPI, and PostgreSQL (Python, Javascript)
- Designed CI/CD pipelines for testing and automatic deployment with Github Actions
- 200k € of revenue in the first year

KTH   Jun 2023 – Jun 2024
Research Engineer - Large Language Models   *Stockholm, SE*
  Research Assistant in the Theoretical Computer Science department, ASSERT research group
- Collected, processed, and published the largest collection of smart contracts and Solidity code in the world
- Fine-tuned CodeLLaMa to generate invariants in Solidity code to enhance smart contract security, using PEFT and QLoRA
- Developed a program for automatic program repair of Solidity code using smartbugs and OpenAI API

RISE   Apr 2023 – Jun 2023
Research Engineer - Distributed systems   *Stockholm, SE*
Spring intern in Philip Haller research group, Portals is
- contributed to the development of Portals a framework that unifies the Distributed Dataflow Streaming Model and Actor Model
- ported Scala APIs to Javascript, for edge computing environments.

CERN   Apr 2021 – Jun 2022
Software Engineer - Quantum Cryptography   *Geneva, CH*
- Developed a Quantum Key Distribution simulator, to exchange symmetric keys, based on BB84 in Python.
- Developed the backend for the simulator with peer-to-peer and client-server architectures using Redis and Flask
- Forked gRPC and reimplemented its transport level using my simulator to provide post-quantum encryption
- Integrated my simulator into federated learning frameworks (OpenFL, Flower) and into a medical data homomorphic encryption system
- Presented the final project at the OpenQKD 5th General Assembly

BitPoliTo   May 2020 – May 2022
Co-founder   *Stockholm, SE*
  Founded a student team at Politecnico di Torino involved in dissemination and development of cryptocurrencies
- Speaker at the BIT PoliTO podcast
- Developed some of the team's projects such as reimplementing Schnorr signatures and running a Bitcoin node

Consultancy

Lovable   Jun 2024-Jul 2024
Consultant - AI engineer   Remote
Designed and developed an open-source benchmarking framework for frontend LLM-based agents.
- Collected a dataset of real-world scenarios fronted projects
- Preprocessed the dataset using an AI oracle by filtering and categorizing agent data points in initial and edit

tasks
- Developed a framework to infer tasks to target code generation agents and verify goal completeness according to several metrics such as build success, diff completeness, and diff correctness,
- Designed an easy-to-use interface to analyze benchmark results.

Maihem   **Jul 2024-Present**
Contractor - AI engineer   Remote
Maihem second employee and Founding AI engineer
- Designed and implemented state-of-the-art LLM hallucination detectors for complex claim verification
- Implemented evaluation metrics for retrieval-augmented generation systems using both classical and AI methods
- Built and deployed internal LLM-based chatbots for testing and prototyping, with FastAPI and both proprietary and open-source models.

EDUCATION

KTH - Royal Institute of Technology   **Sep 2022 – Sep, 2024**
Master's of Science, Software Engineering of Distributed Systems (Data Science track)   *Stockholm, SE*
- Thesis in fine-tuning Large Language Models for synthesizing Solidity code in smart contract development.

Politecnico di Torino   **Sep 2018 – Jun, 2022**
Bachelor's of Science, Computer Engineering, graduated with 107/110   *Turin, IT*
- Participant of "Percorso Giovani Talenti", a program recognizing the top 200 students across all courses.

SKILLS

Python, Scala, JavaScript, Git, Redis, FastAPI, Flask, CI/CD, GitHub Actions, SQL, Large Language Models, Huggingface, Datasets, Apache Spark, Kafka, Linux/Unix, Distributed Systems