

Simone Raponi

SENIOR AI/ML CYBERSECURITY ENGINEER

Rome, Italy

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Experience

Equixly

Remote, Florence

SENIOR AI/ML CYBERSECURITY ENGINEER

Mar. 2023 -

- **Led the Artificial Intelligence division** at Equixly, driving innovation and strategy to enhance the company's AI capabilities and business value.
- Architected and deployed a **suite of AI-driven microservices** that significantly optimized continuous security testing for APIs, resulting in improved detection rates, reduced false positives, and streamlined security workflows, ultimately boosting system reliability and efficiency.

NATO-STO Center for Maritime Research and Experimentation (CMRE)

La Spezia, Italy

MACHINE LEARNING SCIENTIST

Jul. 2021 - Mar. 2023

- Key contributor to the **PROMENADE** European project, playing a pivotal role in advancing maritime safety and surveillance technologies.
- Engineered advanced Encoder-Decoder Seq2Seq models with LSTMs for **forecasting vessel trajectories using AIS data**, significantly enhancing the predictive accuracy and operational efficiency of maritime navigation and monitoring systems.

Iberdrola Innovation Middle East

Doha, Qatar

MACHINE LEARNING SCIENTIST INTERN IN THE SMART GRID LAB

(Jun. - Aug. 2019) (Mar - Apr. 2021)

- Designed and deployed advanced **LSTM-based noise prediction models**, significantly optimizing noise management in Power Line Communication (PLC) systems, leading to improved signal integrity and overall communication efficiency.
- Developed robust **distributed algorithms for data acquisition** across geographically dispersed PLC devices, dramatically enhancing system reliability and performance, and enabling real-time, scalable monitoring and decision-making.

Telefonica Research

Barcelona, Spain

MACHINE LEARNING AND BIG DATA SCIENTIST INTERN

Jul. 2018 - Aug. 2018

- Conducted in-depth analysis and experimentation on AI's impact on user privacy in Internet services, uncovering critical insights into data protection and contributing to the development of strategies that **safeguard user information** while maintaining AI performance and service quality.

Hamad Bin Khalifa University

Doha, Qatar

TEACHING ASSISTANT

Jan. 2018 - Apr. 2021

- Led and instructed a suite of graduate and private courses, including Security Risk Analysis, Multimedia Security, Distributed Systems Security, and Open Source Intelligence in Cyberspace, equipping students with critical skills in cybersecurity and risk management

Education

Hamad Bin Khalifa University

Doha, Qatar

PH.D. IN COMPUTER SCIENCE AND ENGINEERING

Jan. 2018 - Apr. 2021

- Best Ph.D. in Computer Science and Engineering, Computer Science and Engineering Outstanding Performance Award.
- Thesis: AI-driven Detection of Cybersecurity-related Patterns.
- Outcomes: **1 book, 11 Int. conference papers, 10 Int. journal papers, 2 patents**, 1 encyclopedia entry.

Sapienza University of Rome

Rome, Italy

MASTER'S DEGREE IN COMPUTER SCIENCE

Jan. 2016 - Oct. 2017

- Thesis: Geographical De-anonymization of Crowds in the Dark Web, Final Mark: **110/110 summa cum laude**
- Dissertation on IEEE International Conference on Distributed Computing Systems, extension on IEEE Transactions on Services Computing.

Sapienza University of Rome

Rome, Italy

BACHELOR'S DEGREE IN COMPUTER SCIENCE

Sep. 2012 - Jan. 2016

- Thesis: An Administrative Model for Attribute-Based Access Control.
- Final Mark: **110/110 summa cum laude**.

Skills

Languages: English (Advanced), Italian (Mother tongue), Spanish (Basic), Deutsch (Basic)

Programming Languages: Python, Golang, C, C++, Java, Julia, Matlab

Frameworks: TensorFlow, PyTorch, Keras, Scikit-Learn, Hugging Face Transformers, LangChain, Django, Flask

Others: Probability, Statistics, Cybersecurity, LLM, Data structures and algorithms, ML, DL, Cyber Threat Intelligence

Publications

PATENTS

US Patent App. 16/657,088, Methods and Systems for Verifying the Authenticity of a Remote Service

US Patent App. 16/880,525, Online Account Access Recovery System and Method Utilizing Secret Splitting

BOOKS

2021 **New Dimensions of Information Warfare**, *R. Di Pietro, S. Raponi, M. Caprolu, S. Cresci*, Springer Nature

SELECTED PAPERS

2022 **PAST-AI: Physical-layer Authentication of Satellite Transmitters via Deep Learning**, *G. Oligeri, S. Sciancalepore, S. Raponi, R. Di Pietro*, IEEE Transactions on Information Forensics and Security (TIFS).

2022 **Sound of Guns: Digital Forensics of Gun Audio Samples meets Artificial Intelligence**, *S. Raponi, I. Ali, G. Oligeri*, Springer Nature Multimedia Tools and Applications.

2021 **Cryptomining Makes Noise: Detecting Cryptojacking via Machine Learning**, *M. Caprolu, S. Raponi, G. Oligeri, R. Di Pietro*, Computer Communications (COMCOM).

2019 **Nationality and Geolocation-Based Profiling in the Dark (Web)**, *M. La Morgia, A. Mei, E. Nemmi, S. Raponi, J. Stefa*, IEEE Transactions on Services Computing (TSC).

2020 **BrokenStrokes: On the (in)Security of Wireless Keyboards**, *G. Oligeri, S. Sciancalepore, S. Raponi, R. Di Pietro*, ACM Conference on Security and Privacy in Wireless and Mobile Networks (WISEC).

2018 **Time-Zone Geolocation of Crowds in the Dark Web**, *M. La Morgia, A. Mei, S. Raponi, J. Stefa*, IEEE International Conference on Distributed Computing Systems (ICDCS).

Extracurricular Activities

The Illustrated Machine Learning Website

Remote

CO-FOUNDER AND TECHNICAL CONTRIBUTOR

Jan. 2023 –

- <https://illustrated-machine-learning.github.io/>
- Creation of visual tools to demystify the elegance and intricate workings of machine learning concepts.

International Conferences and Journals

PROGRAM COMMITTEE MEMBER

- Served as a PC member for 15+ prestigious int. conferences, contributing to key decisions on research quality and conference themes.

TECHNICAL REVIEWER

- Reviewer of 30+ leading international conferences and journals, ensuring high standards of research quality and integrity.
- Technical Reviewer of the book: 10 Machine Learning Blueprints you should know for Cybersecurity.

RedHotCyber

Remote

TECHNICAL WRITER – ARTIFICIAL INTELLIGENCE TEAM

Jul. 2023 –

- Author of insightful content exploring the synergies between Cybersecurity, Artificial Intelligence, and their practical applications.

International Contests

Doha, Qatar

CO-FOUNDER AND EXECUTIVE ASSISTANT

2019

- Co-founded and organized the Qatar International Cyber Security Contest, fostering global collaboration and innovation in cybersecurity.

Volunteering

VOLUNTEER

- Over 12 years as a **Civil Protection member**, actively involved in firefighting, earthquake relief, and emergency response
- **Volunteer** with Roma Altruista, contributing to initiatives such as food distribution to the homeless, and teaching Italian to immigrants.

Funded Grants

Doha, Qatar

PRINCIPAL INVESTIGATOR

- Project “*Securing Online Transactions*” funded within the Technology and Development Fund (TDF) by QNRF (\$ 90,627.90)
- Project “*Detecting Cryptojacking in Corporate Network*” funded within the Innovation Center’s Idea Development Fund Grant (\$ 13,700)
- Project “*Strong Server Authentication for Online Transactions*” funded within the Innovation Center’s Idea Development Fund Grant (\$ 13,700)
- Project “*Extending Blockchain Technology – A Novel Paradigm and Its Applications to Cybersecurity and Fintech*” funded within NPRP11S-0109-180242, by QNRF (\$ 600,700)

Mentor

Doha, Qatar

MASTER STUDENT’S MENTOR

2019

- Title: Terminator: a Termination Effect on Symmetric Key Encryption by Hybrid Ransomware, Student: Ahmad Nasser A. A. Alkuwari.
- Title: Unikernels for Web Applications and Services: Analysis, Security Assessment, and Offensive Techniques, Student: Faher Bakri.
- Title: Fake News Propagation Blueprint, Student: Zeinab Khalifa.