Franco Terranova

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EDUCATION

Université de Lorraine & INRIA, Nancy, France — 10/2023 — 10/2026
Ph.D. in Computer Science - RESIST Team / SuperviZ Project (France 2030)
Thesis Title: Reinforcement Learning-Based Approaches for Automated Security Analysis of Networked Systems

- Designed and implemented Deep RL agents to predict potential cyber-attack paths as a proactive defense strategy
- Leveraged GNNs and LMs to create embedding spaces for more scalable and generalizable agents
- Extended Microsoft's CyberBattleSim environment to model more complex and real attack–defense scenarios

University of Pisa, Pisa, Italy — 09/2021 — 09/2023
Master's Degree in Artificial Intelligence and Data Engineering — Final Grade: (110/110) cum laude

University of Pisa, Pisa, Italy — 09/2018 — 07/2021
Bachelor's Degree in Computer Engineering — Final Grade: (110/110) cum laude

EXPERIENCE

Universitat Politècnica de Catalunya — Barcelona, Spain
Visiting Researcher - Barcelona Neural Networking Center — 11/2025 — 03/2026
Project: GNN-based embedding spaces for scalable and generalizable RL for networking tasks

University of Waterloo — Waterloo, Canada
Visiting Researcher - Cheriton School of Computer Science — 06/2024 — 12/2024
Project: Multi-agent RL for secure and efficient virtual machine placement

Fermi National Accelerator Laboratory — Chicago, Illinois
Master Degree Thesis Researcher - Deep Skies Lab — 05/2023 — 08/2023
Project: Deep RL solutions for autonomous telescope scheduling

European Space Agency — Köln, Germany
AI/ML Engineer Intern - Spaceship EAC Team — 11/2022 - 04/2023
Project: CNNs and Computer Vision for real-time detection of spaceflight-related ocular conditions

Fermi National Accelerator Laboratory — Chicago, Illinois
Summer Intern - GlidenWMS Project — 07/2022 — 09/2022
Project: ML-based workload allocation and modular software for distributed computing

ACADEMIC ENGAGEMENT

Teaching

Introduction to Natural Language Processing	IDMC, Nancy, France - 09/2025
Project Management Tools	IDMC, Nancy, France - 09/2025
Probability and Statistics	IDMC, Nancy, France - 09/2025
Data Science	IDMC, Nancy, France - 03/2025
Méthodes et Outils pour l'Analyse du Comportement Humain	IDMC, Nancy, France - 01/2025
Symbolic Artificial Intelligence	IDMC, Nancy, France - 01/2025

Tutorials

Tutorial From RL to Meta-RL	European Agent Systems Summer School, Romania - 09/2025
Introduction to Reinforcement Learning & Deep RL	DeepLorIA, France - 11/2024
Foundations of Deep RL and Environment Setup	European Agent Systems Summer School, Ireland - 08/2024
Organizer, DeepLorIA Network: Coordinated 10+ tutorials on AI topics	LORIA, Nancy, France - 2024–2026

Seminars

Modeling Attacker Behavior with RL Agents to Anticipate Vulnerability Paths	University of Tokyo, Japan - 11/2025
Learning to Predict Cyber Attack Paths with Reinforcement Learning	Cybersecurity Workshop, Tokyo, Japan - 11/2025

Experimental Setup & Design for RL Experiments	LAAS-CNRS, Toulouse, France - 09/2025
Can AI Help Us Understand Vulnerabilities?	Forum InCyber Europe, Lille, France - 03/2025
Discovering Critical Vulnerability Paths using RL Agents	Campus Cyber, Paris, France - 03/2025
Deep RL for Cyber-Attack Path Prediction	INRIA Rennes, France - 03/2024
Autonomous Telescope Scheduling with Reinforcement Learning	PyHEP 2023 Workshop, Online - 10/2023
Introduction to Reinforcement Learning	Fermilab Cross-lab AI Meetings, Chicago, Illinois - 07/2023

Summer Schools

OxML Summer School on Representation Learning	Oxford, UK - 08/2025
Geilo Winter School on Graphs & Applications	Geilo, Norway - 01/2024
Fermilab Summer School	Chicago, Illinois - 07/2022

RESEARCH

Selected Conference papers

- Terranova, F., Lahmadi, A. & Chrisment, I. (2025). "Scalable and Generalizable RL Agents for Attack Path Discovery via Continuous Invariant Spaces," in Proceedings of the 28th International Symposium on Research in Attacks, Intrusions and Defenses (RAID'25).
- Terranova, F., Lahmadi, A. & Chrisment, I. (2024). "Leveraging Deep Reinforcement Learning for Cyber-Attack Paths Prediction: Formulation, Generalization, and Evaluation," in Proceedings of the 27th International Symposium on Research in Attacks, Intrusions and Defenses (RAID'24).
- Terranova, F., Voetberg, M., Nord, B. & Pagul, A. (2023). "Self-Driving Telescopes: Autonomous Scheduling of Astronomical Observation Campaigns with Offline Reinforcement Learning," in Proceedings of the Machine Learning and the Physical Sciences Workshop, 37th Conference on Neural Information Processing Systems (NeurIPS).

Patent: Ritter, S., Drescher, J., Stern, C., Terranova, F., Cowley, A. (2025). "Mobile Device and Computer-Implemented Method for Real-Time Retinal Diagnosis, Data Processing Apparatus, Computer Program, and Computer-Readable Medium," filed in US and EU patent offices.

Peer Reviewing: NeurIPS 2025 (Position Paper Track), IJCNN 2025, AAAI 2024 (Multi-Agent AI in the Real World Workshop), Computational and Structural Biotechnology Journal (2024), RESSI 2025 ("Session thèse" contributions)

Supervision: Supervised 1 IDMC M1 Summer Intern, 4 IDMC M1 students (Second Semester), and 1 intern from University of Cincinnati on the project "Automated Mapping of Vulnerabilities to MITRE ATT&CK Techniques Using NLP" (2025)

EXTRA

Mentoring: Mentee for the Université de Lorraine Mentorship Program (2024), LeadTheFuture Mentorship Program (2023), Young ISSNAF Mentoring Program for Students (2023), and SGAC Mentorship Program (2023)

Memberships: Member of the AI Doctoral Academy (since 2023), IEEE, IEEE Computer Society, IEEE Computational Intelligence Society & IEEE Communications Society Member (since 2024), ACM, and ACM SIGAI Member (since 2024)

Social Engagement: AI-enabled Proactive Cybersecurity Stand, Nuit de la Science & Fête de la Science, Nancy, France (2025); Scrutineer for the European Elections, Nancy, France (2024); Booth Staff for the European Space Agency at Festival Yggdrasil, Eurexpo Lyon, France (2023)

OTHER PROJECTS

Internet of Things for a Smart Regolith Transportation System — Golden, Colorado
Over The Dusty Moon Challenge 2023 - Colorado School of Mines / Lockheed Martin — 12/2022 — 06/2023

Cyber-Attack Response with Graph Neural Networks and Language Models — Milan, Italy
European Union Defense Innovation Scheme Hackaton 2024 — 05/2024 — 06/2024

References

Prof. Abdelkader Lahmadi, Ph.D. Supervisor, Université de Lorraine, Nancy, France — abdelkader.lahmadi@loria.fr
Prof. Isabelle Chrisment, Ph.D. Supervisor, Université de Lorraine, Nancy, France — isabelle.chrisment@loria.fr
Prof. Brian D. Nord, Master Thesis Co-Supervisor, Fermi National Accelerator Laboratory, Chicago, IL — nord@fnal.gov
Prof. Mario G.C.A. Cimino, Master Thesis Supervisor, University of Pisa, Pisa, Italy — mario.cimino@unipi.it