Solayman Ayoubi

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Presentation

I have been passionate about IT since childhood. After completing my Computer Science studies, I pursued further learning and am now doing a PhD thesis on AI in Cybersecurity, focusing on intrusion detection in networks. I am friendly, reliable, and punctual, enjoying group projects and ensuring everyone is satisfied with my work.

Education

PhD **Sorbonne University**, Artificial Intelligence — Jan 2022 – present
- **Focus:** Machine Learning-based Intrusion Detection Systems (IDS)

MSc **University of Lyon**, Artificial Intelligence — Sept 2019 – June 2021
- **Focus:** Computer Science and Artificial Intelligence
- **Coursework:** Multi-agent Systems, Machine Learning, Data Mining, Data Visualization, Graph Theory, Internet of Things (IoT)

BSc **University of Lyon**, Computer Science — Sept 2016 – June 2019
- **Focus:** Computer Science and Mathematics
- **Coursework:** Object-Oriented, Functional, and Concurrent Programming, Multi-agent Systems, Machine Learning, Data Mining, Data Visualization, Graph Theory, IoT, Databases, Systems and Networks

Experience

Helvetia CyberLock SA, MLOps Engineer — Lausanne, Switzerland
Nov 2022 – present
- Led the full lifecycle management of LLMs, including design, fine-tuning, and deployment using Docker and cloud services.
- Deployed RAG (Retrieval-Augmented Generation) solutions with LlamaIndex.
- Built and maintained full-stack dashboard applications using React, Next.js, and JavaScript.

LIP6, UMR 7606 Sorbonne Université, CNRS, Researcher in AI and Network Security (PhD Student) — Paris, France
Jan 2022 – present
- Developed a framework for comprehensive evaluation and comparison of IDS models
- Expertise in supervised, unsupervised, and adversarial learning techniques for IDS security
- Researched model explainability and privacy attacks (e.g., membership inference, model extraction)

LIP6, UMR 7606 Sorbonne Université, CNRS, Researcher in AI and Network Security (Intern) — Paris, France
Feb 2021 – July 2021
- Survey of IDS assessment methodologies, metrics and datasets
- Design of a data-driven assessment approach
- Evaluation of the approach on some available IDS implementations

University of Lyon, Software Engineer (Intern) — Lyon, France
July 2020 – Dec 2020
- Deployment of the university's mobile application on Android and iOS
- Improved reliability of existing services and interconnection with university services

Roverba CGS, DevOps Engineer (Intern) — Lyon, France
Apr 2019 – Sept 2019
- Detailed report and comparisons of FOSS ERP solutions

- Creation of a monitoring solution on network equipment and hyperconverged solutions
- Creation and deployment of virtual clusters

Publications

Privacy Benchmarking of Intrusion Detection Systems 2025
Solayman Ayoubi, Gregory Blanc, Houda Jmila, Sébastien Tixeuil
The 39th International Conference on Advanced Information Networking and Applications (AINA-2025)

Demo: Towards Reproducible Evaluations of ML-Based IDS Using Data-Driven Approaches 2024
Solayman Ayoubi, Gregory Blanc, Houda Jmila, Sébastien Tixeuil
10.1145/3658644.3691368 (Conference on Computer and Communications Security (CCS' 24))

FREIDA: A Concrete Tool for Reproducible Evaluation of IDS using a Data-driven Approach 2024
Solayman Ayoubi, Gregory Blanc, Houda Jmila, Sébastien Tixeuil
International Conference on Risks and Security of Internet and Systems

Data-Driven Evaluation of Intrusion Detectors: A Methodological Framework 2023
Solayman Ayoubi, Gregory Blanc, Houda Jmila, Thomas Silverston, Sébastien Tixeuil
10.1007/978-3-031-30122-3_9 (Foundations and Practice of Security)

Explainable AI for Cybersecurity: a Survey 2022
Fabien Charmet, Harry Chandra Tanuwidjadja, ***Solayman Ayoubi***, Pierre-François Gimenez, Yufei Han and Houda Jmila, Gregory Blanc, Takeshi Takahashi, Zonghua Zhang
10.1007/s12243-022-00926-7 (Annals of Telecommunications)

Projects

FREIDA 2024
- Developed a Open Source Framework for Reproducible Evaluation of IDS using a Data-driven Approach
- Tools Used: Python, Pytorch, Tensorflow

Graph Convolutional Networks 2020
- State of the art analysis of GCNs (neural networks) usage for community detection
- Implementation of different methods from the scientific literature
- Tools Used: Python, Pytorch, NetworkX

Billing Software 2019
- Freelance project for the company Roverba
- Development of a billing software for out-of-package communications related to VoIP telephone subscriptions
- Tools Used: Go, SQL, PHP, Javascript

Skills

Languages: French (mother tongue), English (C1)

Programming: C++, Rust, Java, SQL, NoSQL, JavaScript, Python, Go

Machine-Learning: Numpy, Scikit-Learn, Pytorch, Keras, Tensorflow, MLlib, XAI

Technologies: Power BI, Hadoop, Spark, CI/CD, Cloud, Linux, Shell, Networks, Docker, PostgreSQL, MongoDB

Soft: Proactive, Communication, Leadership, Orgranization, Punctuality