

Francesco Intoci Cyber Security Master Student

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📍 Ecublens (VD), Switzerland

📅 04 Jan 1999

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in Francesco Intoci

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STRENGTHS

- **Security:** Solid background in security fundamentals, computer science, networking. Strong interest for network security.
- **Software:** Experience with several programming and scripting languages. Code quality evangelist
- **Project management:** Experience with time management, multitasking, agile methodologies, working under pressure
- **Soft Skills:** Excellente problem-solving skills. Good communication skills. Proactive learner. Team worker.

EDUCATION

Sep 2020 – Mar 2023
Lausanne, Switzerland

EPFL, CyberSecurity - Master Degree

- GPA **5.72 / 6.00**
- **Student Assistant** for "Information Security & Privacy" and "Mobile Networks"
- **Participation in CTF events** with team "polygl0ts" in Spring 2021

Sep 2021 – Mar 2022
Zurich, Switzerland

ETH, CyberSecurity - Master Degree (Exchange Semester)

- **1st Prize Semester Project Award** in "Advanced Topics on Communications Network"
- **Finalist in Geneva Cyber 9/12 challenge**

Sep 2017 – Jul 2020
Torino, Italy

Politecnico di Torino, Computer Engineering - Bachelor Degree

- GPA **110 / 110 cum laude**
- **Participation in "CyberChallenge.IT"** program, selected among 200+ applicants
- **Student Assistant** for "Computer Science"

EXPERIENCE

Oct 2022 – present
Lausanne, Switzerland

Intern - Master Thesis Student, CYD Campus - Armasuisse

Working on **privacy of 5G** core network protocol

Mar 2022 – present
Lausanne, Switzerland

Semester Project - Summer Student researcher, EPFL

Working on **Privacy-Preserving Machine Learning** using **Fully Homomorphic Encryption** and **Multiparty Computation**.

- Independent research on current state-of-the-art solutions for privacy preserving inference on Deep Learning models
- Implemented a flexible framework for inference for diverse protocol specifications
- Comparable performance to state-of-the-art related works
- Technologies: Go, Python, PyTorch, numpy, Lattigo

SKILLS

Security

Knowledge in applied cryptography (homomorphic encryption, MPC protocols), network security, software security, reverse engineering (Ghidra), debugging (gdb), system administration (Linux), web-app security (Burpsuite)

Full-Stack Web Development

Past experience in full-stack web development using React, Django and Flask. Past experience using Nginx, Unicorn WSGI

Virtualization

Docker, Vagrant, Oracle VirtualBox

Software Engineering

Experience in programming (Go, Python, C, etc) and algorithms and data structures. Software testing (TDD). Distributed systems. Parallel programming. Version Control (Git)

Data Analysis and Machine Learning

Experience with SQL. Data analysis libraries (pandas, numpy) and machine learning libraries (Pytorch, scikit-learn, Keras). Big Data (Spark)

Soft Skills

Leadership, team-working, excellent oral and written communication skills

LANGUAGES

Italian



English



Spanish



French



PROJECTS

Hippocrates, *Secure, decentralized storage system for medical files*

- Implementation of Threshold Cryptosystem, Distributed Key Generation and VSS protocols
- Implementation of Distributed Ledger with Paxos consensus
- Implementation of API for file upload/retrieval
- Technologies: Go

SecretStroll, *Privacy-By-Design implementation of a LBS system and privacy evaluation*

- Research on attribute-based credentials and implementation of Pointcheval-Sanders signatures
- Data analysis and de-anonymization attack on LBS queries using DBSCAN algorithm
- Web fingerprinting attack on Tor using Decision Tree
- Technologies: Python, Pandas, scikit-learn

MPC suite, *Framework for evaluating arithmetic circuits using MPC protocols*

- Implementation of parsing logic for arithmetic circuit using AST
- Implementation of linear gates and multiplication gates using triplets based Beaver Circuit Randomization
- Technologies: Python

iMovies, *Implementation of enterprise PKI infrastructure*

- Full-stack development of a web app for interfacing with the Certificate Authority
- Black-Box / White-Box penetration testing and risk analysis
- Technologies: React, Django, Unicorn, Nginx, Vagrant, Python, Bash

ACM Sigmod Challenge 2021, *Learning Methods for Entity Resolution across e-commerce datasets*

- Research on state-of-the-art supervised learning approach for ER
- Source Normalization, Blocking, design of match scoring
- Classification using SVM and Decision Forest
- Technologies: Python, Keras, PySpark

13Rexford, *Control Plane and Data Plane of a real ISP network topology*

- Implementation of Control Plane and Data Plane of Claranet topology using BMv2 Simple Switch Target and Mininet
- Load balancing using ECMP. Implementation of algorithm for finding LFAs and RLFA in network. Design of lazy heartbeat system for link failure detection
- Technologies: Python, P4_16

ACME, *ACME client for LetsEncrypt Pebble*

- Extensive research and study of RFCs (ACME, JSW, JOSE cryptography)
- Implementation of ACME client with support for HTTP and DNS challenge
- Technologies: Go

EXTRA CURRICULAR ACTIVITIES

Fitness enthusiast

Agonistic canoe polo player, gym, team sports in general

Arts

Fond of crime fiction books. Movies and TV series enjoyer. Avid videogames player

Cooking

Enjoy cooking, with a particular focus on Italian traditional dishes and family recipes