Angelo **Feraudo**

Last Updated on 28th September 2022

Future Goals

I'm particularly interested in research, as result of my enthusiasm in studying new technologies and discovering their behaviours. My last research activities involved two macro-topic: distributed systems and cyber-security. To acquire expertise and theoretical skills on these fields, I focused the last years of my academic path on topics like Distributed and mobile systems, AI and Data mining techniques. In the meanwhile, I've tried to improve my knowledge of cyber-security by doing research and project on my own and by attending different conferences on this topic.

Education

2017–2020 **MSc in Computer Engineering**
Alma mater studiorum University of Bologna
Thesis title: **Distributed Federated Learning in Manufacturer Usage Description (MUD) Deployment Environments**
Supervisor: Prof. **Paolo Bellavista**
Co-supervisor: Prof. **Jon Crowcroft** and Dr. **Poonam Yadav**
Final grade: **110**/110 **with honours**
Courses List: Operating Systems M, Operation Research, Foundations of Artificial Intelligence M, Software Systems Engineering M, Distributed Systems, Protocols and Architectures For Space Networks M, Innovation and Project Management M, Information Security M, Project work for Information Security M, Computational Models and Languages, Data mining, Intelligent system, Mobile systems

2013–2017 **Bachelor's Degree in Computer Engineering**
Alma Mater Studiorum University of Bologna
Thesis title: **Implementazione di Network Function Virtualization attraverso container Docker in una rete SDN**
Supervisor: Prof. **Marco Prandini**
Co-supervisor: Dr. **Andrea Melis**
Final grade: **103**/110
Exams of my choice: Laboratory of System Administration, Web Technologies

Working experience

2021
Nov-Today **PhD student in Computer Science and Engineering**
University of Bologna (full-time)

2021
Apr-Nov **Research scholarship: Federated and Reinforcement Learning for Industrial Environments**
University of Bologna (full-time)

2020
July-Sept **HORIZON INTERNSHIP - 05 (DADA): Traffic scheduling in home IoT networks using deep reinforcement learning**
University of Nottingham (full-time)
See "Towards Manufacturer Usage Description Extension" project in Projects section

Apr-June **ACM-W UK Inspire 2020: Setting Research Support in Machine Learning for ACM-W UK funded Internship**
University of York (part-time)
A work in collaboration with Poonam Yadav, Siamak F. Shahandashti and Vassilios G Vassilakis from University of York, and Budi Arief from University of Kent. (see "Position paper: A systematicframework for categorising IoT device fingerprinting mechanisms" in Achievements section)

Languages
Italian, English

Coding Experience
Java, C, C++, Python, JavaScript, Shell

Working Environments
Eclipse, PyCharm, Visual Studio, Visio, NodeJS, Git, Virtual Machines, Docker, Arduino IDE, Vim, Latex

Security Tools
Kali linux, Parrot Linux, Burp Suite, Zen Map, DirBuster, Hydra, WireShark, Metasploit, Ettercap

Certificates
IELTS: overall band 7 (C1)
Italian Car License
EASA Drone License(A1-A3)

Hobbies
Weekly runner
Video Editing
Guitar
Drone

Teaching Activities

Feb 2018-
July 2019 **Tutor for the course Computer Fundamentals T-1 (Java), in Management Engineering, University of Bologna**

Achievements

2021

September **Published a journal Paper in IEEE ACCESS: "Defining the behavior of IoT devices through the MUD standard: review, challenges and research directions"** https://doi.org/10.1109/ACCESS.2021.3111477

2020

December **Qualified Italian computer engineer**

October **Published a position paper in AIChallengeIoT 2020 workshop "Position paper: A systematic framework for categorising IoT device fingerprinting mechanisms"** https://dl.acm.org/doi/10.1145/3417313.3429384

April **Published a paper in EdgeSys 2020 workshop "CoLearn: Enabling Federated Learning in MUD-compliant IoT Edge Networks"** https://dl.acm.org/doi/abs/10.1145/3378679.3394528

February **Conditional Offer of Admission Certificate: PhD University of Cambridge**

2019

October **Published a poster in a top-tier Sensing conference "Enforcing accountability in Smart built-in IoT environment using MUD"**

May **Received Scholarships to spend study and research periods abroad aimed at preparing the final dissertation for Computer Engineering Degree Programme of the DISI Department, Bologna Campus.**

Projects

7 months **Towards Manufacturer Usage Description Extension** July-Sept 2020/Oct 2020 - Jan 2021
Extension of MUD data model: packet-rate and byte-rate.
Extension of osMUD manager: supported linux firewall systems (ebpf and iptables).
Analysis of a huge dataset containing IoT generated data, in terms of bytes and packets per minute.
Supervisors: Dr. **Diana Andreea Popescu** and Prof. **Richard Mortier**
Co-supervisor: Dr. **Poonam Yadav**

3 months **Internet of Things device fingerprinting** Apr-July 2020
Deep analysis of existing mechanisms enabling IoT device fingerprinting
Supervisors: Dr. **Poonam Yadav**

6 months **Distributed Federated Learning in Manufacturer Usage Description (MUD) Deployment Environments(MSc Graduation Work)** September 2019 - February 2020 Cambridge
Based on two main topics: (1) Manufacturer Usage Description (MUD), a new way to reduce the IoT devices communications to those intended by the manufacturer; (2) Federated Learning, which is a distributed machine learning approach that preserves the privacy of the data

5 months **Project Work in Information security (part-time)** November 2018 - March 2019 Bologna
This work was focused on the analysis of Bluetooth Security in some IoT scenarios