LORENZO PAPPONE

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EDUCATION

Saint Louis University, St. Louis, MO ***Aug 2021 - current***
Ph.D. Student in Computer Science GPA 3.90/4.0
Department of Computer Science

University of Naples Federico II, Naples, Italy ***Mar 2021***
B.S & M.S in Computer Engineering GPA 3.95/4.0
Department of Electrical Engineering and Information Technology

PERSONAL SKILLS AND COMPETENCES

Language: Italian (native), English (fluent)
Programming: Python, Java, Scala, C/C++, Javascript
Other Tools: git, MATLAB, Spark, Hadoop, Flask, Tensorflow, Keras, MySQL, PostgreSQL

WORK EXPERIENCE

Saint Louis University, St. Louis, MO, USA ***Ago 2021-current***
Graduate Research Assistant

Research Areas: Machine Learning for Computer Networks, Internet Measurement, Cybersecurity.

· Conduct research on algorithms for routing with reinforcement learning and on prediction of mobile network traffic using deep learning.

Almaviva DigitalTec, Naples, Italy ***Mar 2021-Ago 2021***
Data Engineer

· Design and development of a back-end Spark job for a big data management platform. The back-end job supports SQL-like operations over geo-spatial data (Scala, SQL).

· Implementation of data pipelines and pre-processing over geospatial data stored in PostgreSQL/PostGIS databases using Apache Spark engine over an AWS cluster.

University of Naples Federico II, Naples, Italy ***Oct 2020-Mar 2021***
Graduate Research Assistant

· Research and development of network traffic aggregation techniques using sliding time windows to generate flow-level aggregated features.

RELEVANT COURSEWORK AND PROJECTS

Internet Performance Analysis. Experience with network data processing with Apache Spark. The dataset was built from raw traffic data using Spark DataFrame, then characterized and elaborated using Spark API. The architecture was deployed on a distributed Databricks cluster to run the experiments. (Python)

Network Security. Generation and propagation of a Trojan malware using Metasploit and SEToolkit tools on a Kali Linux OS. The malware could avoid AV static and dynamic analysis and tested on a Windows OS, after being embedded in a Windows installer using the NSIS tool. (C, C++)

Machine Learning. Satellite image processing to study the ability of the soil of not absorbing water using convolutional neural networks. (Python)

Principles of Software Development. Design and development of a web-based context-aware spellchecking application in a team. I was responsible for the the back-end implementing statistical approaches to provide users with ranked suggestions for misspelled words. (Flask, JS)

Cloud and Datacenter Networking. Implementation of the ECMP protocol using software defined networking on a leaf-spine topology, built using the Mininet tool. The control plane was deployed using a Ryu controller and the OpenFlow protocol.

Computer Systems Engineering. Implementation and of a client-server application for workload analysis and load balancing of incoming HTTP requests. A server pool was deployed using Microsoft Azure. The communication has been tested using the Jmeter tool and each virtual machine has been provided with an Apache web server.

PUBLICATIONS

[1] **L. Pappone**, F. Cerasuolo, V. Persico, D. Ciuonzo, A. Pescape, and F. Esposito, "Prediction of mobile-app network-video-traffic aggregates using multi-task deep learning," in *2022 IFIP Networking Conference (IFIP Networking)*, IEEE, 2022, pp. 1–6.

[2] R. Amoroso, **L. Pappone**, and F. Esposito, "A federated learning approach to traffic matrix estimation using super-resolution techniques," in *2023 IEEE 20th Consumer Communications & Networking Conference (CCNC)*, IEEE, 2023, pp. 473–476.

[3] S. S. Bhavanasi, **L. Pappone**, and F. Esposito, "Dealing with changes: Resilient routing via graph neural networks and multi-agent deep reinforcement learning," *IEEE Transactions on Network and Service Management*, 2023.