LORENZO PAPPONE

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EDUCATION

Saint Louis University, St. Louis, MO
Ph.D., Computer Science, Aug. 2021 - current

University of Naples Federico II, Naples, Italy
B.S & M.S, Computer Engineering, Sep. 2015 - Mar. 2021, GPA: 110/110 with Honors

TECHNICAL SKILLS

Programming: Python, Java, C/C++, Javascript, Scala
Other Tools: Tensorflow, Keras, PyTorch, Scikit-Learn, MySQL, git, MATLAB, Unix/Linux, Spark, Hadoop, Docker
Language: Italian (native), English (fluent)

PROFESSIONAL EXPERIENCES

Research Assistant
Saint Louis University, St. Louis, MO, Aug. 2021 - current

- Conducted research and authored articles on machine learning, deep learning, anomaly detection, network optimization.
- Teaching: CS5930 Object-Oriented Programming, CS3100 Algorithms, CS4930 Computer Networks.

Visiting Researcher
Boston University, Boston, MA, May - Sep. 2023

- Conducted research on transfer learning with generative adversarial networks for network attack intrusion detection.

Software Engineer
Almaviva DigitalTec, Naples, Italy, Mar. - Ago 2021

- Core member of the big data engineering team. Design and development of back-end Spark jobs for a big data management platform to support SQL-like operations over geo-spatial data (Scala, SQL).

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

- Cooperated with 10+ researchers and collaborated with Huawei research lab on the development of multi-task deep learning approaches to predict mobile-app network traffic aggregates over short-time scales.

RELEVANT PROJECTS

Network Intrusion Detection with Generative AI. Lead developer of an unsupervised learning model for network attack detection based on Generative Adversarial Networks, using Python and Tensorflow. Achieved comparable or superior performance when compared to supervised learning baselines.

Reinforcement Learning Congestion Control. Designed and developed an adaptive kernel-based transport protocol for congestion control using reinforcement learning. Delivered outstanding results by surpassing the performance of 18 benchmarked protocols in terms of throughput and latency.

Computer Vision for Network Traffic Prediction. Designed and implemented a distributed deep learning model using super-resolution techniques to predict fine-grained network traffic volume. Achieved superior performance compared to state-of-the-art super-resolution algorithms while ensuring privacy-preserving data distribution.

PUBLICATIONS

[1] **Pappone, L.**, Cerasuolo, F., Persico, V., Ciuonzo, D., Pescape, A., Esposito, F., "Prediction of mobile-app network-video-traffic aggregates using multi-task deep learning," *2022 IFIP Networking Conference (IFIP Networking)*, pp. 1–6, 2022. DOI: 10.23919/IFIPNetworking55013.2022.9829800.

[2] Bhavanasi, S. S., **Pappone, L.**, Esposito, F., "Dealing with changes: Resilient routing via graph neural networks and multi-agent deep reinforcement learning," *IEEE Transactions on Network and Service Management*, 2023. DOI: 10.1109/NFV-SDN56302.2022.9974607.