LORENZO PAPPONE

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EDUCATION

Saint Louis University, St. Louis, MO   Aug. 2021 - Present
Ph.D., Computer Science, GPA: 3.97
University of Naples Federico II, Naples, Italy   Sep. 2015 - Mar. 2021
B.S & M.S, Computer Engineering, GPA: 110/110 with Honors

WORK EXPERIENCE

Doctoral Researcher   Aug. 2021 - Present
Saint Louis University, St. Louis, MO
- Conducted research in machine learning for networked systems, with publications in top-tier conferences and journals, including NSDI.
- Mentored undergraduate students, leading to a co-authored publication in a high-impact journal, showcasing successful guidance in advanced research methods.
- Contributed to the implementation of data pipelines for collecting, storing, and analyzing campus Internet traffic activity using PMACCT, mySQL, Python.
- Teaching Assistant: CS5930 Data Structures, CS3100 Network Security, CS4930 Computer Networks.

Visiting Researcher   May 2023 - Sep. 2023
Internet Intelligence Lab, Boston University, Boston, MA
- Coordinated research on unsupervised learning and domain adaptation to transfer DL-based intrusion detection models to different network domains.

Data Engineer   Mar. 2021 - Aug. 2021
Big Data Engineering Team, Almaviva DigitalTec, Naples, Italy
- Developed back-end Spark jobs for a big data management platform to support SQL-like operations over large geo-spatial datasets using Scala, Python and PostgreSQL.

Graduate Research Assistant   Oct. 2020 - Mar. 2021
AI Research Lab, University of Naples Federico II, Naples, Italy,
- Cooperated with 10+ senior researchers on the development of multi-task deep learning models to predict large mobile traffic volumes over distributed clusters using Horovod framework.

RELEVANT PROJECTS

Network Congestion Control with Online Reinforcement Learning   July. 2024
Saint Louis University, St. Louis, MO
- Designed and implemented an online reinforcement learning algorithm with Tensorflow and a Linux kernel module to optimize network congestion control, improving average latency and throughput by 12% compared to baselines.

Distributed Deep Learning for Network Traffic Prediction   Feb. 2024
Saint Louis University, St. Louis, MO
- Designed and implemented a federated deep learning model using super-resolution to predict fine-grained network traffic volume. Achieved superior performance compared to state-of-the-art algorithms.

Data Augmentation using Generative AI   Sep. 2023
Saint Louis University, St. Louis, MO
- Developed generative adversarial network models to address data scarcity with synthetic traffic data generation for malware classification, resulting in increased robustness and scalability of classifier models.

TECHNICAL SKILLS

Programming: Python, Java, C/C++, Javascript, Scala, SQL, R
Tools: Tensorflow, Keras, PyTorch, Pandas, NumPy, Hadoop, Spark, SQL, git, Unix/Linux

SELECTED PUBLICATIONS

[1] **Pappone, L.**, Sacco, A., Esposito, F., "Mutant: Learning congestion control from existing transport protocols," *22nd USENIX Symposium on Networked Systems Design and Implementation (NSDI)*, 2025.

[2] **Pappone, L.**, Zilli, C., Sacco, A., Esposito, F., "Rescue: Inferring fine-grained traffic matrices via distributed deep residual networks," *20th International Conference on Network and Service Management (CNSM)*, 2024.

[3] 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.