Giampaolo Bovenzi, PhD

Curriculum Vitæ et Studiorum

Personal Information

Name **Giampaolo**
Surname **Bovenzi**
Date of Birth **11 February 1993**
Place of Birth **Caserta (CE), Italy**
Nationality **Italian**

Contacts

Email **giampaolo.bovenzi@unina.it**
LinkedIn `https://www.linkedin.com/in/giampaolo-bovenzi/`
Web Site `http://wpage.unina.it/giampaolo.bovenzi/`
GitHub `https://github.com/jmpr0/`

Affiliation

Department of Electrical Engineering and Information Technology (DIETI), *University of Napoli Federico II*, Via Claudio 21, 80125, Napoli, Italy

G.S.D. 09/IINF-05, S.S.D. IINF-05/A

Current Position

Oct 2023 – Present **Assistant Professor (RTD-a)**, *University of Napoli Federico II*, enrolled in the research project approved under the National Recovery and Resilience Plan (PNRR) titled: "RESearch and innovation on future Telecommunications systems and networks, to make Italy more smART" (RESTART) PE14

Work Experience

Jun 2022 – Jun 2023 **Post-Doctoral Researcher**, *University of Napoli Federico II*, analysis and development of techniques for modeling, generation, and prediction of network application traffic

Oct 2018 – May 2022 **PhD Researcher**, *University of Napoli Federico II*, in Information Technology and Electrical Engineering, with focus on network privacy and security

Education

Academic Qualifications

May 2022 **PhD in Information Technology and Electrical Engineering (XXXIV Cycle)**, *University of Napoli Federico II*, with additional certification of **Doctor Europaeus**. Judgment: *The research work involved in the dissertation is original. The methodologies used are good. The results are good and analyzed with very good critical sense. In the presentation and discussion, the candidate demonstrated good knowledge of the issues dealt with. The dissertation is, hereby, approved. The Committee expresses the following overall opinion on the candidate's achievements during the course of his Doctoral programme: good and proposed that Mr. Bovenzi Giampaolo be awarded the Doctoral Degree of Dottore di Ricerca, with additional certification of Doctor Europaeus.*

Oct 2018 **Master's Degree in Computer Engineering**, *University of Napoli Federico II*, specialization in Networks and Internet. Final grade: 110/110 summa cum laude

Jan 2016 **Bachelor's Degree in Computer Engineering**, *University of Napoli Federico II*. Final grade: 101/110

Jul 2012 **Scientific High School (specialization in Computer Science – National Program, PNI)**, *Scientific High School "L. Garofano", Capua (CE)*. Final grade: 87/100

Theses

O-3 **Giampaolo Bovenzi**, *"A Hierarchical Learning Framework for Network Traffic Analysis: Design, Implementation, and Use Cases"*, Doctoral Thesis in Information Technology and Electrical Engineering, University of Napoli Federico II. Feb 2022

O-2 **Giampaolo Bovenzi**, *"A Framework for Hierarchical Traffic Classification of Anonymity Networks"*, Master's Thesis in Computer Engineering, University of Napoli Federico II. Oct 2018

O-1 **Giampaolo Bovenzi**, *"Hypergraph Database"*, Bachelor's Thesis in Computer Engineering, University of Napoli Federico II. Jan 2016

Languages

Italian, *native language*

English, *fluent*

Internship Activities

Nov 2020 – May 2021 **At Huawei R&D Center France**, *Huawei Technologies France S.A.S.U.*. Focused on participating in work groups dedicated to research and review activities. Internship activities resulted in publication C-4.

Mar – Jul 2018 **At ARCLAB**, *University of Napoli Federico II*, DIETI. Focused on participating in work groups dedicated to research and review activities. Internship activities resulted in publication C-1, particularly in the Master's Thesis (O-2), from which J-1 is developed.

Academic Activities

Since 2018, teaching activities have been carried out based on direct interaction with students, both during core and specialized courses—including lecturing, teaching assistance, seminars, and exercises—and during the supervision of internships and Bachelor's and Master's theses

Lead University Teaching Activities

Since 2023, continuous teaching activities have been carried out for **three university courses** related to S.S.D. IINF-05/A, for which responsibilities include the preparation and dissemination of teaching materials and syllabus, delivery of lectures, classroom seminars and exercises, design and supervision of laboratory sessions, exam preparation and supervision, student mentoring and support, assignment creation and grading, course administration and coordination, and curriculum development. Below is a chronological list of the courses and corresponding academic years in which teaching was conducted:

A.Y. 2025/2026 — **Basics of Informatics (ongoing)**, *Instructor: Prof. Giampaolo Bovenzi, Bachelor's Degree in Civil Engineering*, University of Napoli Federico II, Naples

A.Y. 2024/2025 — **Programming Foundations**, *Instructor: Prof. Giampaolo Bovenzi, Bachelor's Degree in Mechatronics*, University of Napoli Federico II, Naples

A.Y. 2023/2024 — **Basics of Informatics**, *Instructor: Prof. Giampaolo Bovenzi, Bachelor's Degree in Mechanical Engineering and Bachelor's Degree in Aerospace Engineering*, University of Napoli Federico II, Naples

Teaching Assistance and Exam Support Activities

Since 2018, continuous collaboration has been maintained in the teaching of **seven university courses** related to the topics of S.S.D. IINF-05/A—three core courses and four specialized courses—for which responsibilities include the preparation and dissemination of teaching materials, delivery of lectures, classroom seminars and exercises, laboratory activities, examination sessions, and student support. Below is a chronological list of the courses and corresponding academic years in which teaching collaboration was provided:

2023 – Present — **Technologies and Applications for Digital Transformation**, *Instructors: Profs. Antonio Pescapè and Antonio Montieri, Master's Degree in Management Engineering*, University of Napoli Federico II, Naples

2024 – Present — **Data Analysis and Cybersecurity**, *Instructor: Prof. Antonio Pescapè, Master's Degree in Computer Engineering*, University of Napoli Federico II, Naples

2020 – 2023 — **Internet Data Analysis**, *Instructor: Prof. Antonio Pescapè, Master's Degree in Computer Engineering*, University of Napoli Federico II, Naples

2022 – 2023 — **Foundations of Calculatory Networks**, *Instructor: Prof. Valerio Persico, Bachelor's Degree in Mechatronic Engineering*, University of Napoli Federico II, Naples

2021 – 2022 — **Basics of Informatics**, *Instructor: Prof. Valerio Persico, Bachelor's Degree in Mechatronic Engineering*, University of Napoli Federico II, Naples

2018 – 2020 — **Internet Analysis and Performance**, *Instructor: Prof. Antonio Pescapè, Master's Degree in Computer Engineering*, University of Napoli Federico II, Naples

2018 – Present **Computer Networks I**, *Instructor: Prof. Antonio Pescapè, Bachelor's Degree in Computer Engineering*, University of Napoli Federico II, Naples

Professional Teaching Activities

Jan 2025 – Feb 2025 **Lecturer**, *DIGITA Academy, Naples*, Bootcamp AI DIGITA, Topic: Fundamentals of Artificial Intelligence (22 hours). Responsibilities include the preparation of teaching materials, lectures, lab activities, student support

Nov 2023 **Lecturer**, *DIGITA Academy, Naples*, Python, Topic: Fundamentals of Python Programming (8 hours). Responsibilities include the preparation of teaching materials, lectures, lab activities, student support

Third Mission and Knowledge Transfer

Mar 2025 **Lecturer/Trainer**, *Netscout Systems Italy S.r.l., Modena*, ML/AI applied to network monitoring – Methods for telecoms use case (8 hours). Responsibilities include the preparation of teaching materials, lectures, lab activities, student support

Supervision of Bachelor's Thesis and Internship Activities

Since 2018, supervision and support have been provided to **over 13 students for Bachelor's Theses and Internships** in Computer and Telecommunications Engineering conducted at the Arclab laboratory of the Department of Electrical Engineering and Information Technologies, University of Napoli Federico II

Supervision of Master's Thesis and Internship Activities

Since 2018, co-advisory support has been provided for **14 Master's Theses in Computer Engineering** at the University of Napoli Federico II, focusing on topics related to computer networks. They are listed in reverse chronological order, starting with the most recent:

A.Y. 2024/2025 **Candidate: Raffaele Carillo; Advisor: Antonio Pescapè; Co-advisors: Giampaolo Bovenzi, Francesco Cerasuolo**, *"Federated Class Incremental Learning for Mobile Traffic Classification"*, Master's Degree in Computer Engineering, University of Napoli Federico II, Naples. Final Grade: 110/110

A.Y. 2023/2024 **Candidate: Marco Prugno Siniscalchi; Advisors: Martino Trevisan, Antonio Pescapè; Co-advisors: Domenico Ciuonzo, Giampaolo Bovenzi**, *"Network Traffic Augmentation with Generative Artificial Intelligence"*, Master's Degree in Computer and Electronic Engineering, University of Trieste, Trieste. Final Grade: 99/110

A.Y. 2023/2024 **Candidate: Pasquale Voria; Advisor: Antonio Pescapè; Co-advisors: Giampaolo Bovenzi, Idio Guarino**, *"Architecture for Android Malware Analysis: Construction of Malware Datasets through Static Analysis of APKs and Generated Network Traffic"*, Master's Degree in Computer Engineering, University of Napoli Federico II, Naples. Final Grade: 109/110

A.Y. 2023/2024 **Candidate: Giuseppe Piccolo; Advisor: Domenico Ciuonzo; Co-advisors: Mara Sangiovanni, Giampaolo Bovenzi**, *"Diffusion Models for Synthetic Generation of Encrypted Network Traffic"*, Master's Degree in Computer Science, University of Napoli Federico II, Naples. Final Grade: 110/110 summa cum laude

A.Y. 2023/2024 **Candidate: Francesco Riccardi; Advisor: Antonio Pescapè; Co-advisor: Giampaolo Bovenzi**, *"HAT-SEC: A Hierarchical Attention Transformer for Malware Classification"*, Master's Degree in Computer Engineering, University of Napoli Federico II, Naples. Final Grade: 110/110 summa cum laude

A.Y. 2022/2023 **Candidate: Vincenzo Spadari; Advisor: Antonio Pescapè; Co-advisor: Giampaolo Bovenzi**, *"A MLflow-based Framework for Network Traffic Classification and Anomaly Detection"*, Master's Degree in Computer Engineering, University of Napoli Federico II, Naples. Final Grade: 110/110 summa cum laude

A.Y. 2021/2022 **Candidate: Alessandro Testa; Advisor: Antonio Pescapè; Co-advisors: Valerio Persico, Giampaolo Bovenzi**, *"An Unsupervised Approach to Improve the Robustness of Network Anomaly Detection Systems under Poisoning Attacks"*, Master's Degree in Computer Engineering, University of Napoli Federico II, Naples. Final Grade: 110/110 summa cum laude

A.Y. 2020/2021 **Candidate: Luigi Fontana; Advisor: Antonio Pescapè; Co-advisors: Valerio Persico, Giampaolo Bovenzi**, *"Design, Implementation, and Validation of Architectures for Mobile Traffic Prediction and Classification through Combined Deep Learning Approaches"*, Master's Degree in Computer Engineering, University of Napoli Federico II, Naples. Final Grade: 110/110 summa cum laude

A.Y. 2020/2021 **Candidate: Francesco Cerasuolo; Advisor: Antonio Pescapè; Co-advisors: Domenico Ciuonzo, Giampaolo Bovenzi**, *"Class Incremental Learning in Deep Learning Mobile Traffic Classification"*, Master's Degree in Computer Engineering, University of Napoli Federico II, Naples. Final Grade: 110/110 summa cum laude

A.Y. 2020/2021 **Candidate: Davide Di Monda; Advisor: Antonio Pescapè; Co-advisors: Giampaolo Bovenzi, Antonio Montieri**, *"Classification of IoT Attack Traffic via Few-Shot Learning Approaches"*, Master's Degree in Computer Engineering, University of Napoli Federico II, Naples. Final Grade: 110/110 summa cum laude

A.Y. 2019/2020 **Candidate: Idio Guarino; Advisors: Antonio Pescapè, Alessio Botta; Co-advisor: Giampaolo Bovenzi**, *"Study, Implementation, and Experimental Evaluation of Techniques for Modeling and Predicting Mobile Application Traffic through Markovian Approaches"*, Master's Degree in Computer Engineering, University of Napoli Federico II, Naples. Final Grade: 110/110 summa cum laude

A.Y. 2019/2020 **Candidate: Ciro Guida; Advisor: Antonio Pescapè; Co-advisor: Giampaolo Bovenzi**, *"Multi-step Modeling and Prediction of Mobile Traffic using Machine Learning and Deep Learning Techniques"*, Master's Degree in Computer Engineering, University of Napoli Federico II, Naples. Final Grade: 110/110 summa cum laude

A.Y. 2019/2020 **Candidate: Nicola Esposito; Advisor: Antonio Pescapè; Co-advisors: Antonio Montieri, Giampaolo Bovenzi**, *"Modeling and Prediction of Mobile Application Traffic through Composition of Hybrid Deep Networks"*, Master's Degree in Computer Engineering, University of Napoli Federico II, Naples. Final Grade: 110/110 summa cum laude

A.Y. 2018/2019 **Candidate: Pasquale Brasiello; Advisor: Antonio Pescapè; Co-advisors: Giampaolo Bovenzi, Fabio Cornevilli, Gianluca Roscigno**, *"Analysis, Prototyping, and Experimental Validation of Machine Learning Methods: A Case Study on Network Attack Data"*, Master's Degree in Computer Engineering, University of Napoli Federico II, Naples. Final Grade: 110/110 summa cum laude

Participation in Graduation Committees

2018 – Present **Regularly invited membership has been held, as co-advisor, on Bachelor's and Master's Thesis Committees for Computer Engineering degrees at the School of Polytechnic and Basic Sciences**, University of Napoli Federico II, Naples

Postgraduate Education Activities

Details regarding post-graduate training and research activities are reported below. For each category, experiences are listed in reverse chronological order, starting from the most recent.

2018 – 2021 **University Courses at the University of Napoli Federico II**. During the PhD program, participation was carried out according to the organization and curriculum of the doctoral program, attending multiple university courses and ad-hoc modules for PhD students and Master's students in Computer Engineering, including *Data Management* (Master's course, 6 ECTS, Prof. Flora Amato), *Digital Forensics* (ad-hoc module, 3 ECTS, Prof. Giovanni Cozzolino), *Machine Learning* (ad-hoc module, 5 ECTS, Prof. Carlo Sansone), *Strategic Orientation for STEM Research & Writing* (ad-hoc module, 6 ECTS, Prof. Chie Shin Fraser), *Big Data* (ad-hoc module, 3 ECTS, Eng. Giancarlo Sperlì), *Advanced Techniques for Software Robustness and Security Testing* (ad-hoc module, 3 ECTS, Prof. Roberto Natella), *Data Science and Optimization* (ad-hoc module, 1.2 ECTS, Prof. Manlio Gaudioso), *Cyberconflicts* (ad-hoc module, 0.8 ECTS, Gian Piero Siroli, Francesco Vestito, Prof. Simon Pietro Romano, and Daniele Amoroso), and *Author Seminar - How to Publish a Scientific Paper* (ad-hoc module, 0.4 ECTS, Dr. Aliaksandr Birkov and Elisa Magistrelli)

2018 – 2021 **Seminars at the University of Napoli Federico II**. During the PhD program, participation was carried out according to the organization and curriculum of the doctoral program, attending 22 seminars on relevant topics, including *Cyber Security in Akka Technologies* (0.4 ECTS, Dr. Luigi Villa, Sara Belluccini, Matteo Pracchia), *Approaches to Graph Machine Learning* (0.2 ECTS, Miroslav Cepek), *The Era of Industry 4.0: New Frontiers in Business Model Innovation* (0.2 ECTS, Marco Balzano), *Patent Searching Best Practices with IEEE Xplore* (0.2 ECTS, IEEE Xplore Webinar), *Exploiting Deep Learning and Probabilistic Modeling for Behavior Analytics* (0.2 ECTS, Prof. Giuseppe Manco), *At the Nexus of Big Data, Machine Intelligence, and Human Cognition* (0.2 ECTS, Prof. George S. Djorgovski), *How to Publish Open Access with IEEE to Increase the Exposure and Impact of Your Research* (0.2 ECTS, IEEE Xplore Webinar), *Virtualization Technologies and Their Applications* (Lessons 1 and 2) (0.4 ECTS, Dr. Luigi De Simone), *On Reinforcement Learning for Computing Channel Capacity with Feedback* (0.2 ECTS, Prof. Haim Permuter), *Applying Semi-Supervised Learning to App Store Analysis* (0.2 ECTS, Daniel Rodriguez), *In-Network Machine Learning for Networks* (0.4 ECTS, Dr. Roberto Bifulco), *Internet Censorship: Enforcement, Detection, and Circumvention* (2 ECTS, Prof. Giuseppe Aceto), ...

(continued from previous page). ..., *Bitcoin and Blockchain Beyond the Hype* (0.6 ECTS, Gabriele Sabbatini, Lorenzo Giustozzi, Marco Monaco, and Felice Balsamo), and *An Introduction to Blockchains* (0.4 ECTS, Ida Rejeki Siahaan)

Sep 2019 **International Summer School**, *"Machine Learning and Security"*, Padua, Italy, September 9–13, 2019

Research Activities

Since 2018, research activities have been carried out at recognized Italian and international institutions. The following is a chronological list of these activities in reverse order, starting from the most recent, divided between Italian and international institutions

Research Activities at Italian Institutions

Oct 2023 – Present **Assistant Professor (RTD-a)**, *University of Napoli Federico II*, enrolled in the research project approved under the National Recovery and Resilience Plan (PNRR) titled: "RESearch and innovation on future Telecommunications systems and networks, to make Italy more smART" (RESTART) PE14

Jun 2022 – Jun 2023 **Post-Doctoral Researcher**, *University of Napoli Federico II*, analysis and development of techniques for modeling, generation, and prediction of network application traffic

Oct 2018 – May 2022 **PhD Researcher**, *University of Napoli Federico II*, in Information Technology and Electrical Engineering, with focus on network privacy and security

Mar – Jul 2018 **Intern at ARCLAB**, *University of Napoli Federico II*, DIETI. Focused on participating in work groups dedicated to research and review activities. Internship activities resulted in publication C-1, particularly in the Master's Thesis (O-2), from which J-1 is developed.

Research Activities at International Institutions

Nov 2020 – May 2021 **Intern at Huawei R&D Center France**, *Huawei Technologies France S.A.S.U.*. Focused on participating in work groups dedicated to research and review activities. Internship activities resulted in publication C-4.

Project Work Execution

Since 2019, participation was carried out as a member of the research unit in **seven funded international research projects**. The following is a list of the research projects and the activities performed, presented in reverse chronological order, starting from the most recent:

2019 – Present **International Research Agreement**, *Innovation Laboratory "Network Traffic and AI enabled Network Technologies"*, funded by Huawei Technologies France SASU, commissioned to the Department of Electrical Engineering and Information Technologies, University of Napoli Federico II. Participation as a member of the research unit, contributing to the definition of innovative methodologies and the development of AI-based algorithms for network traffic analysis

2024 – 2025 **International Project**, *Augmenting Network Traffic Datasets with Generative AI*, funded by Huawei Technologies France SASU, commissioned to the Department of Electrical Engineering and Information Technologies, University of Napoli Federico II. Participation as a member of the research unit, contributing to the development of novel Generative AI-based methodologies for augmenting network traffic datasets, addressing class imbalance and sample scarcity issues, generating both headers and payloads for known and new traffic classes, and evaluating the impact of synthetic data on AI-based traffic classification accuracy and large-scale traffic classification architectures

2024 – 2025 **International Project**, *Analysis of NCCL Network Communications*, funded by Huawei Technologies France SASU, commissioned to the Department of Electrical Engineering and Information Technologies, University of Napoli Federico II. Participation as a member of the research unit, contributing to the study of network traffic patterns generated by distributed AI frameworks, analyzing the relationship between NCCL operations (AllReduce, Broadcast, Reduce, AllGather, ReduceScatter) and the corresponding network usage, and developing methodologies to predict operation timings and detect anomalies with the goal of identifying at least 90% of anomalous occurrences

2021 – 2022 **International Project**, *Continual Traffic Classification*, funded by Huawei Technologies France SASU, commissioned to the Department of Electrical Engineering and Information Technologies, University of Napoli Federico II. Participation as a member of the research unit, contributing to the study of innovative methodologies to update traffic classification models, focusing on handling limited sample sizes and integrating new knowledge without invalidating previously learned information

2020 – 2021 **International Project**, *A First Look at Incremental Learning*, funded by Huawei Technologies France SASU, commissioned to the Department of Electrical Engineering and Information Technologies, University of Napoli Federico II. Participation as a member of the research unit, contributing to the study of innovative techniques for incrementally updating machine and deep learning-based traffic classification models, enabling integration of new knowledge without retraining the models from scratch

2019 – 2021 **National Project**, *SYNERGY-NET — Research and Digital Solutions in the Fight Against Oncological Diseases*, co-funded by POR CAMPANIA FESR 2014/2020. Participation (for a total of 1184 hours) as a member of the research unit, contributing to the definition of methodologies and models to support the fight against oncological diseases

2019 – 2021 **International Project**, *Network Traffic Modeling and Prediction*, funded by Huawei Technologies Co. Ltd., commissioned to the Department of Electrical Engineering and Information Technologies, University of Napoli Federico II. Participation as a member of the research unit, contributing to the development of innovative algorithms for modeling and predicting encrypted network traffic and video application-generated traffic

Affiliation and Participation in Research Groups

Since 2018, membership has been held in several national research groups:

2018 – Present **Participation in the Traffic research group**, *led by Prof. Antonio Pescapè*, affiliated with the Department of Electrical Engineering and Information Technologies, University of Napoli Federico II

2018 – Present **COMICS Research Group (COMputers for Interaction and CommunicationS)**, *led by Prof. Giorgio Ventre*, affiliated with the Department of Electrical Engineering and Information Technologies, University of Napoli Federico II

Organization and Coordination of Research Activities and Project Tasks

Within the scope of technical-scientific activities, contributions have been made to the organization of activities, laboratories, and research groups at various institutions, as well as to the coordination of project tasks, as detailed below:

2019 – Present **Member of the research unit within the International Research Agreement**, *Innovation Laboratory "Network Traffic and AI enabled Network Technologies"*, funded by Huawei Technologies France SASU, commissioned to the Department of Electrical Engineering and Information Technologies, University of Napoli Federico II, Naples. Participation as a member of the research unit for the development of innovative methodologies and AI-based algorithms for network traffic analysis

2024 – 2025 **Member of the research unit within the International Project**, *"Augmenting Network Traffic Datasets with Generative AI"*, funded by Huawei Technologies France SASU, commissioned to the Department of Electrical Engineering and Information Technologies, University of Napoli Federico II, Naples. Participation as a member of the research unit for the development of novel Generative AI-based methodologies to augment network traffic datasets, addressing class imbalance and sample scarcity, generating both headers and payloads for known and new traffic classes, and evaluating the impact of synthetic data on AI-based traffic classification accuracy and large-scale traffic classification architectures

2024 – 2025 **Member of the research unit within the International Project**, *"Analysis of NCCL Network Communications"*, funded by Huawei Technologies France SASU, commissioned to the Department of Electrical Engineering and Information Technologies, University of Napoli Federico II, Naples. Participation as a member of the research unit for the study of network traffic patterns generated by distributed AI frameworks, analyzing the relationship between NCCL operations (AllReduce, Broadcast, Reduce, AllGather, ReduceScatter) and the corresponding network usage, and developing methodologies to predict operation timings and detect anomalies with the goal of identifying at least 90% of anomalous occurrences

2021 – 2022 **Member of the research unit within the International Project**, *"Continual Traffic Classification"*, funded by Huawei Technologies France SASU, commissioned to the Department of Electrical Engineering and Information Technologies, University of Napoli Federico II, Naples. Participation as a member of the research unit for the study of innovative methodologies to update traffic classification models, focusing on learning from limited samples and integrating new knowledge without invalidating previously acquired information

2020 – 2021 **Member of the research unit within the International Project**, *"A First Look at Incremental Learning"*, funded by Huawei Technologies France SASU, commissioned to the Department of Electrical Engineering and Information Technologies, University of Napoli Federico II, Naples. Participation as a member of the research unit for the study of innovative techniques to incrementally update machine and deep learning models for traffic classification, integrating new knowledge without retraining models from scratch

2019 – 2021 **Member of the research unit within the International Project**, *"Network Traffic Modeling and Prediction"*, funded by Huawei Technologies Co. Ltd., commissioned to the Department of Electrical Engineering and Information Technologies, University of Napoli Federico II, Naples. Participation as a member of the research unit for the development of innovative algorithms for modeling and prediction of encrypted and video application-generated network traffic

2019 – 2021 **Member of the research unit within the National Project**, *"SYNERGY-NET — Research and Digital Solutions in the Fight Against Oncological Diseases"*, co-funded by POR CAMPANIA FESR 2014/2020, University of Napoli Federico II, Naples. Participation as a member of the research unit contributing to the definition of methodologies and models supporting the fight against oncological diseases

2018 – Present **Organization and coordination of research activities for thesis students, PhD candidates, and research fellows**, within the Traffic research group led by Prof. Antonio Pescapè, affiliated with the Department of Electrical Engineering and Information Technologies, University of Napoli Federico II, Naples. Collaboration in coordinating research activities of thesis students, PhD candidates, and research fellows

Editorial and Revision Activities

Editorial Activities

Mar 2024 – Present **Associate Editor**, Elsevier Neurocomputing. Serving as an Associate Editor, managing the peer-review process, evaluating manuscript submissions, and contributing to the editorial decisions to maintain high-quality research publications in the field of computational neuroscience and AI-based modeling

Conference Chair

Oct 2025 **General Chair**, 1st IEEE International Workshop on Generative and eXplainable Artificial Intelligence for Networking (GenXNet), Marrakech, Morocco

Jul 2024 **Web Chair**, 1st IEEE International Workshop on Generative, Incremental, Adversarial, Explainable AI/ML in Distributed Computing Systems (AI-DCS), Jersey City, New Jersey (USA)

Member of Technical Program Committee (TPC) for International Conferences

- 2025 IEEE Future Networks World Forum (IEEE FNWF 2025)
- 2025 IEEE World Forum on Internet of Things (IEEE WF-IoT 2025)
- 2025 IFIP Networking Conference (IFIP NETWORKING 2025)
- 2024 IEEE World Forum on Internet of Things (IEEE WF-IoT 2024)
- 2024 IEEE Future Networks World Forum (IEEE FNWF 2024)
- 2024 IEEE International Conference on Microwaves, Communications, Antennas, Biomedical Engineering & Electronic Systems (IEEE COMCAS 2024)
- 2024 IEEE/ACM International Symposium on Quality of Service (IEEE/ACM IWQoS 2024)

- 2024 IFIP Networking Conference (IFIP NETWORKING 2024)
- 2023 IEEE International Conference on Microwaves, Communications, Antennas, Biomedical Engineering & Electronic Systems (IEEE COMCAS 2023)
- 2023 IEEE Cyber Security and Resilience Workshop on Data Science for Cyber Security (IEEE CSR 2023 DS4CS)

Reviewer for International Journals

- AIMS Mathematical Biosciences and Engineering
- Elsevier Computer Networks
- Elsevier Computers & Security
- Elsevier Future Generation Computer Systems
- Elsevier Neurocomputing
- Elsevier Journal of Network and Computer Applications
- IEEE/ACM Transactions on Networking
- IEEE Access
- IEEE Communications Letters
- IEEE Computer Networks
- IEEE Internet of Things Journal
- IEEE Open Journal of the Communications Society
- IEEE Transactions on Network and Service Management
- MDPI Mathematics
- Nature Scientific Reports
- Springer Computing
- Wiley Concurrency and Computation: Practice and Experience
- Wiley Transactions on Emerging Telecommunications Technologies

Reviewer for International Conferences

- IEEE Annual International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC): Track 2: Networking and MAC – 1 Edition: 2024
- IEEE Global Communications Conference (Globecom): Communication QoS, Reliability and Modeling (CQRM) Symposium – 2 Editions: 2019, 2022
- IEEE Global Communications Conference (Globecom): Next-Generation Networking and Internet (NGNI) Symposium – 2 Editions: 2019, 2022

- IEEE Globecom Workshops (GC Wkshps): The Impact of Multi-modal Large Language Models on 6G and Beyond (mLLMoNET) – 1 Edition: 2024
- IEEE ICC 2024 1st Workshop on The Impact of Large Language Models on 6G Networks (LLMoNET) – 1 Edition: 2024
- IEEE ICC the International Workshop on Data Driven Intelligence for Networks and Systems – 1 Edition: 2022
- IEEE INFOCOM WKSHPS: Integrating Edge Computing, Caching, and Offloading in Next Generation Networks (IECCO) – 1 Edition: 2019
- IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS) – 1 Edition: 2023
- IEEE International Conference on Communications (ICC): Communication QoS, Reliability and Modeling (CQRM) Symposium – 1 Edition: 2022
- IEEE International Conference on Communications (ICC): Next-Generation Networking and Internet (NGNI) Symposium – 1 Edition: 2024
- IEEE International Conference on Communications (ICC): SAC Machine Learning for Communications and Networking (MLCN) Symposium – 1 Edition: 2025
- IEEE International Conference on Machine Learning for Communication and Networking (ICMLCN) – 1 Edition: 2025
- IEEE JSAC Series on Machine Learning for Communications and Networks (ML4ComNet): Area 5 – 1 Edition: 2022
- IEEE Sensors Applications Symposium (SAS) – 1 Edition: 2019
- IEEE Wireless Communications and Networking Conference (WCNC) – 1 Edition: 2025
- IEEE World Forum on Internet of Things (WF-IoT) – 1 Edition: 2024
- IEEE/ACM International Symposium on Quality of Service (IWQoS) – 2 Editions: 2022, 2024

Conference Presentations

Keynote Speaker at International Conferences

- Nov 2024: ***2024 International Conference on Innovation and Intelligence for Informatics, Computing, and Technologies (3ICT 2024)***, Presentation of the keynote "Toward Effective Network Intrusion Detection Systems: Incremental Learning with Few Attack Samples", Nov 17, 2024, Virtual

Speaker at International Conferences

- May 2023: ***Ital-IA, National CINI Conference on Artificial Intelligence (Ital-IA 2023)***, Presentation of the contribution "Few Shot Learning Approaches for Classifying Rare Mobile-App Encrypted Traffic Samples", May 29—31, 2023 Pisa, Italy
- January 2023: ***The 19th Italian Networking Workshop (INW 2023)***, Presentation of the contribution "Detection of Rare Attacks in Internet of Things Traffic via Few-Shot Learning". January 16—18, 2023, Ponte di Legno, Italy
- October 2022: ***The 14th International Workshop on Cyberspace Security and Artificial Intelligence (CAI 2022)***, Presentation of the paper "Hierarchical Classification of Android Malware Traffic". October 28-30, 2022, Wuhan, People's Republic of China
- May 2022: ***The 2022 IEEE International Conference on Communications (ICC 2022) Communication QoS, Reliability and Modeling (CQRM) Symposium***, Presentation of the paper "Data Poisoning Attacks against Autoencoder-based Anomaly Detection Models: a Robustness Analysis" May 16-20, 2022, Seoul, South Korea
- January 2022: ***The 18th Italian Networking Workshop (INW 2022)***, Presentation of the contribution "A First Look at Class Incremental Learning in Deep Learning Mobile Traffic Classification" January 17—19, 2022, Courmayeur, Italy
- September 2021: ***The 2021 Network Traffic Measurement and Analysis Conference (TMA 2021)***, Presentation of the paper "A First Look at Class Incremental Learning in Deep Learning Mobile Traffic Classification". September 14-15, 2021, Virtual
- December 2020: ***The 2020 IEEE Global Communications Conference (GLOBECOM 2020)***, Communication QoS, Reliability and Modeling (CQRM) Symposium, Presentation of the paper "A Hierarchical Hybrid Intrusion Detection Approach in IoT Scenarios". December 7—11, 2020, Virtual
- January 2020: ***The 17th Italian Networking Workshop (INW 2020)***, Presentation of the contribution "Know your Big Data Trade-offs when Classifying Encrypted Mobile Traffic with Deep Learning". January 29—31, 2020, Cavalese, Italy
- March 2019: ***Ital-IA, National CINI Conference on Artificial Intelligence (Ital-IA 2019)***, Presentation of the contribution "Classificazione Gerarchica del Traffico di Reti Anonime con Machine Learning", March 18—19, 2019 Roma, Italy

National and International Awards and Recognitions for Research Activities

Recognition and grants have been received for publications, research activities, and related work, listed below in reverse chronological order, starting from the most recent

Mar 2023 – Jun 2025 **Certificate of Recognized Reviewer Award**, Computer Networks (Elsevier), as recognition for reviews performed for the journal

May 2025 **Certificate of Recognized Reviewer Award**, Computer Standards & Interfaces (Elsevier), as recognition for reviews performed for the journal

Mar 2024 **Certificate of Recognized Reviewer Award**, Journal of Network and Computer Applications (Elsevier), as recognition for reviews performed for the journal

Oct 2023 **Winner of RTD-a National Recovery and Resilience Plan (PNRR) Competition**, Competition Code: 1_PNRR_RTDA_2023_83; Appointed as Assistant Professor (RTD-a) at the University of Napoli Federico II, enrolled in the research project "RESearch and innovation on future Telecommunications systems and networks, to make Italy more smART" (RESTART) PE14

May 2022 **Winner of Post-Doc Scholarship Competition**, Ref. Scholarship D.I.E.T.I. 03/2022, Network Traffic Modelling and Classification, at the Department of Electrical Engineering and Information Technologies, University of Napoli Federico II, within the research project "Conv.ricerca Dieti 13/2019_Huawei" CUP: E54I1900367000

Oct 2020 **Certificate of Recognized Reviewer Award**, Computers & Security (Elsevier), as recognition for reviews performed for the journal

Oct 2020 **Winner of Competition for Assignment of Teaching Tutoring Incentives**, Type B Assignment granted by the University of Napoli Federico IIfor activities at the Department of Electrical Engineering and Information Technologies

Oct 2018 **PhD Scholarship Winner**, Scholarship funded by the CINI Consortium within the competition for admission to the PhD in Information Technology and Electrical Engineering (XXXIV Cycle) at the Department of Electrical Engineering and Information Technologies, University of Napoli Federico II

Oct 2018 **Winner of PhD Admission Competition**, Competition for admission to the PhD in Information Technology and Electrical Engineering (XXXIV Cycle) at the Department of Electrical Engineering and Information Technologies, University of Napoli Federico II

Research Products

Indicators of Scientific Production

Google Scholar[1]

Citations **840**

Max Citations **219**, (C-3)

h-index **14**

i10-index **16**

[1] https://scholar.google.com/citations?user=XkAQSCkAAAAJ

Scopus[2]

Citations **613**

Max Citations **168**, (C-3)

h-index **12**

Journal Publications

J-13 **Raffaele Carillo, Francesco Cerasuolo, Giampaolo Bovenzi, Domenico Ciuonzo, and Antonio Pescapè**, *"Explainable Federated Class Incremental Learning for Encrypted Network Traffic Classification"*, Elsevier Computer Networks. 2025

J-12 **Francesco Cerasuolo, Giampaolo Bovenzi, Domenico Ciuonzo, and Antonio Pescapè**, *"Attack-Adaptive Network Intrusion Detection Systems for IoT Networks through Class Incremental Learning"*, Elsevier Computer Networks. 2025

J-11 **Francesco Cerasuolo, Giampaolo Bovenzi, Domenico Ciuonzo, and Antonio Pescapè**, *"Adaptable, Incremental, and Explainable Network Intrusion Detection Systems for Internet of Things"*, Elsevier Engineering Applications of Artificial Intelligence. 2025

J-10 **Giampaolo Bovenzi, Francesco Cerasuolo, Domenico Ciuonzo, Davide Di Monda, Idio Guarino, Antonio Montieri, Valerio Persico, and Antonio Pescapè**, *"Mapping the Landscape of Generative AI in Network Monitoring and Management"*, IEEE Transactions on Network and Service Management . 2025

J-9 **Giampaolo Bovenzi, Davide Di Monda, Antonio Montieri, Valerio Persico, and Antonio Pescapè**, *"Classifying Attack Traffic in IoT Environments via Few-Shot Learning"*, Elsevier Journal of Information Security and Applications. 2024

J-8 **Francesco Cerasuolo, Alfredo Nascita, Giampaolo Bovenzi, Giuseppe Aceto, Domenico Ciuonzo, Antonio Pescapè, and Dario Rossi**, *"MEMENTO: A Novel Approach for Class Incremental Learning of Encrypted Traffic"*, Elsevier Computer Networks. 2024

J-7 **Giampaolo Bovenzi, Giuseppe Aceto, Valerio Persico, Antonio Pescapè**, *"Blockchain Performance in Industry 4.0: Drivers, Use Cases, and Future Directions"*, Elsevier Journal of Industrial Information Integration. 2023

J-6 **Giampaolo Bovenzi, Alfredo Nascita, Lixuan Yang, Alessandro Finamore, Giuseppe Aceto, Domenico Ciuonzo, Antonio Pescapè, Dario Rossi**, *"Benchmarking Class Incremental Learning in Deep Learning Traffic Classification"*, IEEE Transactions on Network and Service Management. 2023

J-5 **Giampaolo Bovenzi, Giuseppe Aceto, Domenico Ciuonzo, Antonio Montieri, Valerio Persico, Antonio Pescapè**, *"Network Anomaly Detection Methods in IoT Environments via Deep Learning: A Fair Comparison of Performance and Robustness"*, Elsevier Computers & Security. 2023

J-4 **Antonio Montieri, Giampaolo Bovenzi, Giuseppe Aceto, Domenico Ciuonzo, Valerio Persico, Antonio Pescapè**, *"Packet-Level Prediction of Mobile-App Traffic using Multitask Deep Learning"*, Elsevier Computer Networks. 2021

[2] https://www.scopus.com/authid/detail.uri?authorId=57205422691

J-3 **Giuseppe Aceto, Giampaolo Bovenzi, Domenico Ciuonzo, Antonio Montieri, Valerio Persico, Antonio Pescapè**, *"Characterization and Prediction of Mobile-App Traffic Using Markov Modeling"*, IEEE Transactions on Network and Service Management. 2021

J-2 **Giampaolo Bovenzi, Giuseppe Aceto, Domenico Ciuonzo, Valerio Persico, Antonio Pescapè**, *"A Big Data-Enabled Hierarchical Framework for Traffic Classification"*, IEEE Transactions on Network Science and Engineering. 2020

J-1 **Antonio Montieri, Domenico Ciuonzo, Giampaolo Bovenzi, Valerio Persico, Antonio Pescapè**, *"A Dive into the Dark Web: Hierarchical Traffic Classification of Anonymity Tools"*, IEEE Transactions on Network Science and Engineering. 2019

Conference/Workshop Publications

C-15 **Francesco Cerasuolo, Giampaolo Bovenzi, Antonio Montieri, and Antonio Pescapè**, *"Class Incremental Learning for Network-Agnostic Intrusion Detection Systems"*, 9th IEEE International Forum on Research and Technologies for Society and Industry Innovation (RTSI 2025), Gammarth, Tunisia. 2025

C-14 **Francesco Cerasuolo, Giampaolo Bovenzi, Vincenzo Spadari, Domenico Ciuonzo, and Antonio Pescapè**, *"Explainable Few-Shot Class Incremental Learning for Mobile Network Traffic Classification"*, IEEE Global Communications Conference (GLOBECOM'24), Cape Town, South Africa. 2024

C-13 **Vincenzo Spadari Francesco Cerasuolo, Giampaolo Bovenzi, and Antonio Pescapè**, *"An MLOps Framework for Explainable Network Intrusion Detection with MLflow"*, IEEE Symposium on Computers and Communications (ISCC), Paris, France. 2024

C-12 **Davide Di Monda, Giampaolo Bovenzi, Antonio Montieri, Valerio Persico, and Antonio Pescapè**, *"IoT Botnet-Traffic Classification using Few-Shot Learning"*, IEEE International Conference on Big Data (BigData), Sorrento, Italy. 2023

C-11 **Francesco Cerasuolo, Giampaolo Bovenzi, Christian Marescalco, Francesco Cirillo, and Domenico Ciuonzo, and Antonio Pescapè**, *"Adaptive Intrusion Detection Systems: Class Incremental Learning for IoT Emerging Threats"*, IEEE International Conference on Big Data (BigData), Sorrento, Italy. 2023

C-10 **Giampaolo Bovenzi, Davide Di Monda, Antonio Montieri, Valerio Persico, and Antonio Pescapè**, *"META MIMETIC: Few-Shot Classification of Mobile-App Encrypted Traffic via Multimodal Meta-Learning"*, International Teletraffic Congress Proceedings (ITC'23), Turin, Italy. 2023

C-9 **Giampaolo Bovenzi, Davide Di Monda, Antonio Montieri, Valerio Persico, and Antonio Pescapè**, *"Few Shot Learning Approaches for Classifying Rare Mobile-App Encrypted Traffic Samples"*, IEEE International Conference on Computer Communications (INFOCOM'23), New York, USA. 2023

C-8 **Giampaolo Bovenzi, Valerio Persico, Antonio Pescapè, Anna Piscitelli, and Vincenzo Spadari**, *"Hierarchical Classification of Android Malware Traffic"*, International Workshop on Cyberspace Security and Artificial Intelligence (CAI'22), Wuhan, People's Republic of China. 2022

C-7 **Idio Guarino, Giampaolo Bovenzi, Davide Di Monda, Giuseppe Aceto, Domenico Ciuonzo, and Antonio Pescapè**, *"On the Use of Machine Learning Approaches for the Early Classification in Network Intrusion Detection"*, IEEE International Workshop on Measurements and Networking Proceedings (M&N'22), Padua, Italy. 2022

C-6 **Giampaolo Bovenzi, Francesco Cerasuolo, Antonio Montieri, Alfredo Nascita, Valerio Persico, and Antonio Pescapè**, *"A Comparison of Machine and Deep Learning Models for Detection and Classification of Android Malware Traffic"*, IEEE Symposium on Computers and Communications (ISCC'22), Rhodes Island, Greece. 2022

C-5 **Giampaolo Bovenzi, Alessio Foggia, Salvatore Santella, Alessandro Testa, Valerio Persico, and Antonio Pescapè**, *"Data Poisoning Attacks against Autoencoder-Based Anomaly Detection Models: A Robustness Analysis"*, IEEE International Conference on Communications (ICC'22), Seoul, South Korea. 2022

C-4 **Giampaolo Bovenzi, Lixuan Yang, Alessandro Finamore, Giuseppe Aceto, Domenico Ciuonzo, Antonio Pescapè, Dario Rossi**, *"A First Look at Class Incremental Learning in Deep Learning Mobile Traffic Classification"*, Network Traffic Measurement and Analysis Conference (TMA'21), Virtual. 2021

C-3 **Giampaolo Bovenzi, Giuseppe Aceto, Domenico Ciuonzo, Valerio Persico, Antonio Pescapè**, *"A Hierarchical Hybrid Intrusion Detection Approach in IoT Scenarios"*, IEEE Global Communications Conference (GLOBECOM'20), Taipei, Taiwan. 2020

C-2 **Gabriele Piantadosi, Giampaolo Bovenzi, Giuseppe Argenziano, Elvira Moscarella, Domenico Parmeggiani, Ludovico Docimo, Carlo Sansone**, *"Skin Lesions Classification: A Radiomics Approach with Deep CNN"*, International Conference on Image Analysis and Processing (ICIAP'19). Springer, Cham. 2019

C-1 **Giampaolo Bovenzi, Domenico Ciuonzo, Valerio Persico, Antonio Pescapè, Pierluigi Salvo Rossi**, *"IoT-Enabled Distributed Detection of a Nuclear Radioactive Source via Generalized Score Tests"*, Fourth International Symposium on Signal Processing and Intelligent Recognition Systems (SIRS'18), Bangalore, India. 2018

Book Chapters

B-1 **Ruggiero Bollino, Giampaolo Bovenzi, Francesco Cipolletta, Ludovico Docimo, Michela Gravina, Stefano Marrone, Domenico Parmeggiani, and Carlo Sansone**, *"Synergy-Net: Artificial Intelligence at the Service of Oncological Prevention"*, Springer Handbook of Artificial Intelligence in Healthcare. 2022

Academic Service

Mar 2025 **Member of the Scientific Committee for the Technical-Scientific Evaluation of Project Proposals**, cascading call PE00000001_2 within the RESTART National Centre Project, funded under the Italian National Recovery and Resilience Plan (PNRR), University of Napoli Federico II. Appointed by Rector's Decree No. 551/2025, record No. 1567/2025

Pursuant to Articles 46 and 47 of DPR 445/2000, aware of the criminal penalties under Article 76 of the same decree for false statements, falsification of documents, and use of falsified documents, I declare under my own responsibility that I possess the qualifications listed and am the author/co-author of the publications reported in this CV. I authorize the processing of my personal data in accordance with Legislative Decree 196/2003 for the purposes of this application.

Signature

November 14, 2025