MARCO POSTIGLIONE, PH.D.

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RESEARCH INTERESTS

My research develops trustworthy AI systems at the intersection of security and healthcare. Across both domains, I am driven by translating theoretical advances into deployed systems that serve real-world users (from fact-checkers and journalists to clinicians and public safety organizations) and social good.

EDUCATION

2020-2024 **PH.D., COMPUTER SCIENCE & ENGINEERING | UNIVERSITY OF NAPLES FEDERICO II** Naples, Italy
Information and Communication Technology for Health (ICTH)

- Developed AI systems for biomedical natural language processing, specializing in few-shot learning approaches for Italian clinical text analysis
- Built a temporal knowledge graph framework for predicting disease progression and treatment outcomes
- Led interdisciplinary collaborations with physicians at the Department of Advanced Biomedical Sciences (University of Naples Federico II) to translate clinical needs into AI solutions
- Advisor: Prof. Vincenzo Moscato

2017-2020 **MS, COMPUTER SCIENCE & ENGINEERING | UNIVERSITY OF NAPLES FEDERICO II** Naples, Italy

- Thesis: "CASTLE: Cluster-Aided Space Transformation for Local Explanations"
- Advisor: Prof. Antonio Picariello

2014-2017 **BS, COMPUTER SCIENCE & ENGINEERING | UNIVERSITY OF NAPLES FEDERICO II** Naples, Italy

RESEARCH

2024-present **POSTDOCTORAL RESEARCH SCHOLAR | NORTHWESTERN UNIVERSITY** Evanston, IL
Northwestern Security & AI Lab (PI: Prof. V.S. Subrahmanian)

- Deployed the Global Online Deepfake Detection System (GODDS) serving 70+ news organizations and fact-checkers worldwide (e.g., PolitiFact, USA Today) for AI-generated media verification [link]
- Released MNW Benchmark dataset for deepfake detection research in partnership with Microsoft AI For Good Lab and WITNESS [link]
- Designed a context-aware audio deepfake detector achieving 3.77%-42.79% improvement over state-of-the-art methods (AUC) with superior robustness against adversarial attacks [under review]
- Analyzed AI-generated disinformation risks surrounding the 2024 US Presidential Election [I will present findings at ICWSM'26]
- Developed SMART (Social Movement Analysis & Reasoning Tool) in collaboration with journalists from The Wall Street Journal, Associated Press, Washington Post and others to track discourse dynamics and event relationships in social movements (#MeToo, Black Lives Matter) [link]
- Co-designed and delivered an executive course on Countering AI Proliferation with Prof. V.S. Subrahmanian for government and industry stakeholders [link]
- Built DEWS (Drone Early Warning System) for threat trajectory prediction in partnership with Netherlands Police and Municipality of The Hague, deployed for public safety operations
- Maintained the Northwestern Terror Early Warning System (NTEWS), supporting ongoing national security research and threat analysis

2023-2024 **VISITING PHD STUDENT (6 MONTHS) | KING'S COLLEGE** London, United Kingdom
Department of Biostatistics & Health Informatics (PI: Prof. Richard Dobson)

- Designed a Temporal Knowledge Graph framework that incorporates both the dynamic information of patient clinical histories and the static information of medical ontologies to predict future disorders

SELECTED PUBLICATIONS

For a full list, please refer to Google Scholar or DBLP. ** indicates first author or co-first author (equal contribution)*

2026 La Gatta, V.*, **Postiglione, M.***, Gilbert, J., Linna Jr, D. W., Greenfield, M. M., Shaw, A., & Subrahmanian, V. S. (2025). SMART: A Social Movement Analysis & Reasoning Tool with Case Studies on #MeToo and #BlackLivesMatter. Accepted to appear in *Proceedings of the ACM Web Conference 2026 (WWW '26).*

2026 **Postiglione, M.***, Gortner, I., Fosdick, L., Gao, C., Kraus, S., Subrahmanian, V. S. (2026). A Nonpartisan Study of Deepfake Activity and Engagement Around the 2024 US Presidential Election. Accepted to appear in *Proceedings of the International AAAI Conference on Web and Social Media*.

2026 La Gatta, V.*, **Postiglione, M.***, Gilbert, J., Linna Jr, D. W., Greenfield, M. M., Shaw, A., & Subrahmanian, V. S. (2025). DEEP: A Discourse Evolution Engine for Predictions about Social Movements. Accepted to appear in *Proceedings of the AAAI Conference on Artificial Intelligence*, *IAAI Technical Track on Emerging Applications of AI.*

2025 **Postiglione, M.***, Baldwin, J., Denisenko, N., Fosdick, L., Gao, C., Gortner, I., Pulice, C., Kraus, S. and Subrahmanian, V.S., 2025, April. GODDS: The Global Online Deepfake Detection System. In *Proceedings of the AAAI Conference on Artificial Intelligence* (Vol. 39, No. 28, pp. 29685-29687).

2025 Di Marino, R.*, Dioguardi, G.*, Romano, A.*, Riccio, G.*, Barone, M.*, **Postiglione, M.***, Amato, F.* and Moscato, V.*, 2025. SOLVE-Med: Specialized Orchestration for Leading Vertical Experts across Medical Specialties. In *ECAI 2025 (pp. 5135-5138). IOS Press.*

2025 Barone, M.*, Romano, A., Riccio, G., **Postiglione, M.** and Moscato, V., 2025, July. Combining Evidence and Reasoning for Biomedical Fact-Checking. In *Proceedings of the 48th International ACM SIGIR Conference on Research and Development in Information Retrieval* (pp. 1087-1097).

2025 Romano, A.*, Riccio, G., **Postiglione, M.** and Moscato, V., 2025, April. PIE-Med: Predicting, Interpreting and Explaining Medical Recommendations. In *European Conference on Information Retrieval* (pp. 6-12).

2024 **Postiglione, M.***, Bean, D., Kraljevic, Z., Dobson, R.J. and Moscato, V., 2024. Predicting future disorders via temporal knowledge graphs and medical ontologies. *IEEE Journal of Biomedical and Health Informatics*, *28*(7), pp.4238-4248.

2024 Galli, A.*, La Gatta, V.*, Moscato, V.*, **Postiglione, M.***, & Sperlì, G.* (2024). Explainability in AI-based behavioral malware detection systems. *Computers & security*, *141*, 103842.

2023 Moscato, V.*, **Postiglione, M.***, Sansone, C.* and Sperli, G.*, 2023. Taughtnet: Learning multi-task biomedical named entity recognition from single-task teachers. IEEE Journal of Biomedical and Health Informatics, 27(5), pp.2512-2523.

2022 La Gatta, V.*, Moscato, V.*, Pennone, M.*, **Postiglione, M.*** and Sperlí, G.*, 2022. Music recommendation via hypergraph embedding. IEEE transactions on neural networks and learning systems, 34(10), pp.7887-7899.

2021 La Gatta, V.*, Moscato, V.*, **Postiglione, M.***, & Sperli, G.* (2021). CASTLE: Cluster-aided space transformation for local explanations. *Expert Systems with Applications*, *179*, 115045

2020 La Gatta, V.*, Moscato, V.*, **Postiglione, M.*** and Sperli, G.*, 2020. An epidemiological neural network exploiting dynamic graph structured data applied to the COVID-19 outbreak. *IEEE Transactions on Big Data*, *7*(1), pp.45-55.

TEACHING

2025 **LECTURER | UNIVERSITY OF NAPLES FEDERICO II** Naples, Italy
Designed and delivered a 10-hour module on "*Advanced AI Methods and Applications in Healthcare*" for the PhD program in Information and Communication Technology for Health (ICTH), covering state-of-the-art machine learning techniques, deep learning architectures, and practical applications of AI in clinical and biomedical contexts. [flyer]

2025 **LECTURER | NORTHWESTERN UNIVERSITY** Evanston, Illinois, United States
Co-designed and delivered an executive course on Countering AI Proliferation with Prof. V.S. Subrahmanian for government and industry stakeholders. Covering cutting-edge threats from AI-enabled cyberattacks to IP theft and malicious use of generative models, the course equips leaders with practical knowledge to protect advanced AI assets and safeguard their organizations. [link]

2018-2023 **TEACHING ASSISTANT | UNIVERSITY OF NAPLES FEDERICO II** Naples, Italy

- Machine Learning & Big Data for Health
- Big Data Engineering
- Information Systems
- Electronic Calculators I
- Elements of Physics I
- Elements of Physics II
- Elements of Informatics

AWARDS & HONORS

2022 **BEST DEFINITION OF DATA-CENTRIC AI | DATA-CENTRIC AI COMMUNITY**
Recognition for outstanding contribution to defining the emerging field.

2022 **WINNER OF DISTEMIST CHALLENGE | BIOASQ**
First place in DISease TExt Mining Shared Task (Team: PICUSLab)

2022 **SENIOR FORMATIVE TUTORING BADGE | UNIVERSITY OF NAPLES FEDERICO II**
Recognition for excellence in student mentoring and teaching

PATENTS

2025 **US20250148826A1**
Systems and methods for automatic detection of human expression from multimedia content
A system for analyzing multimedia content featuring a role-matching module to identify participants of interest and a scoring module that evaluates statements based on extracted facial expressions, vocal traits, and textual elements. Provides a dynamic user interface presenting audio, text, or video components with corresponding classification scores.

RESEARCH GRANTS & FUNDING

2025-present **CAP: COUNTERING AI PROLIFERATION | U.S. DEPARTMENT OF STATE**
Lead Researcher (PI: Prof. V.S. Subrahmanian)

- Amount: $599,000
- Developed a Security Advice Chatbot

2025-present **ACCELERATING PARKINSON'S DISEASE CLINICAL RESEARCH IN SWALLOWING AND MOTOR SPEECH DISORDERS | AMERICAN SPEECH-LANGUAGE-HEARING FOUNDATION**
Key Collaborator (PI: Ankita Bhutada, PhD)

- Amount: $10,000
- Coordinated Data Science and NLP research activities for developing large-language model-based solutions to optimize clinical trial efficiency in Parkinson's Disease

2022-2024 **INTELLIGENT CONTRACT AUTOMATION FOR RETHINKING USER SERVICES (ICARUS) | ITALIAN MINISTRY OF ENTERPRISES AND MADE IN ITALY**
Scientific Coordinator, Objective 2 (PI: Prof. Vincenzo Moscato)

- Amount: $375,825
- Coordinated research activities with CNR and Eustema S.p.A., developing AI-based systems for legal document automation. Responsible for methodological design, technical supervision, and implementation of innovative AI

TALKS

2025 **AI-BASED PROTEIN SYNTHESIS: BENEFITS AND RISKS | GUEST LECTURER**
PHYSICS 101-8, Northwestern University (Prof. V. Kalogera)

2024 **DEMONSTRATION OF GENERATIVE MALWARE MODELS | INVITED TALK**
Conference on AI & National Security, Northwestern University

2024 **AN INTRODUCTION TO MONGODB | GUEST LECTURER**
Big Data Engineering, University of Naples Federico II (Prof. V. Moscato)

2022 **OVERVIEW OF FEW-SHOT NAMED ENTITY RECOGNITION | GUEST LECTURER**
STAT E-100, Harvard University (Prof. H. Okabe)

SERVICE

ASSOCIATE EDITOR

2024-present Artificial Intelligence Review

PC MEMBER

2026 International AAAI Conference on Web and Social Media
2026 The ACM Web Conference
2022-2026 AAAI Conference on Artificial Intelligence
2025 IEEE International Symposium on Computer-Based Medical Systems
2024 IEEE International Conference on AI for Medicine, Health, and Care

REVIEWER

IEEE Transactions on Neural Networks and Learning Systems
IEEE Journal of Biomedical and Health Informatics
ACM Transactions on Intelligent Systems and Technology
Expert Systems with Applications
IET Software
Heliyon