

Curriculum Vitae et Studiorum

Massimo Guarascio

Researcher at ICAR-CNR

Contacts

Name and Surname: Massimo Guarascio

Current Position: Researcher

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Short Bio

Massimo Guarascio holds a PhD in Systems and Computer Science Engineering and a master's degree in Computer Science Engineering, both from the University of Calabria. He is currently a researcher at the Institute for High Performance Computing and Networking of the National Research Council (ICAR-CNR) and a shareholder of OKT s.r.l., a spin-off of the University of Calabria (Italy). From 2015, he was a researcher at determined time in the same institute. Previously, from 2006 to 2015, he was a research fellow and postdoctoral researcher.

He co-authored over 80 papers published in international conference proceedings, chapters and journals. His research mainly focuses on deep learning and machine learning, anomaly detection and explanation, process mining, data analytics methods for geosciences and remote sensing, and AI-based techniques for cyber security and fraud detection.

He has participated in European and national research projects concerning machine learning and cybersecurity.

He served as an external reviewer for several journals (including IEEE TNNLS, ESWA, FGCS, and IEEE TSC) and conferences of international relevance (including PKDD, SDM, ICDM, and ACM SAC). He was a Program Committee Member of several relevant conferences, including IJCAI, ECAI, PKDD

On December 2023, he achieved the National Scientific qualification as associate professor in the Italian higher education system, in the call 2021/2023 (Ministerial Decree n. 553/2021 and 589/2021) for the disciplinary field of 01/B1 - Informatics.

Research/Work Experience

Researcher, Institute for high Performance Computing and Networking of the National Research Council of Italy (ICAR-CNR), located in Rende (CS), Italy 27/12/2018 - Current

His research mainly focuses on deep learning and machine learning, anomaly detection and explanation, process mining, data analytics methods for geosciences and remote sensing, AI-Based techniques for cyber security and fraud detection. He served as an external reviewer for several journals and conferences of international relevance. He has participated in European and national research projects concerning machine learning and cybersecurity.

Researcher at determined time, Institute for High Performance Computing and Networking of the National Research Council of Italy (ICAR-CNR), located in Rende (CS), Italy 02/02/2015 – 26/12/2018

R&D on the definition of machine learning approaches for Cyber Security and Fraud Detection. Specifically, the research activities developed during this period were mainly focused on innovative data analysis techniques in the field of end-user protection, the security of payment systems, and secure dematerialization.

Post Doctoral Research Fellow, Institute for High Performance Computing and Networking of the National Research Council of Italy (ICAR-CNR), located in Rende (CS), Italy 01/03/2012 – 31/01/2015

R&D on machine learning techniques for multidimensional and unstructured data (event log, text, multimedia).

Research Fellow, Institute for High Performance Computing and Networking of the National Research Council of Italy (ICAR-CNR), located in Rende (CS), Italy 02/11/2009 – 31/03/2011

Design and development of algorithms and technologies for integrating, managing and distributing data, processes and knowledge.

Research Fellow, Institute for High Performance Computing and Networking of the National Research Council of Italy (ICAR-CNR), located in Rende (CS), Italy 02/11/2007 – 31/10/2009

R&D on data mining algorithms and methods for fraud detection.

Research Fellow, Institute for High Performance Computing and Networking of the National Research Council of Italy (ICAR-CNR), located in Rende (CS), Italy 06/09/2006 – 05/10/2017

Design and development of an advanced platform for the Process Discovery.

Education

- PHD** in System and Computer Engineering, University of Calabria, Rende (CS), Italy February 2011
Thesis: *Data Mining Techniques for Fraud Detection*
- MS** in Computer Engineering, University of Calabria, Rende (CS), Italy February 2006
Thesis: *Web 2.0: information access via ReST Web Services and integration by means of ‘mashup’ of lightweight user interfaces*
- BS** in Computer Engineering, University of Calabria, Rende (CS), Italy February 2003
Thesis: *Advanced Web Information Management: acquisition and transformation*
- Qualification to the profession of engineer**, University of Calabria, Rende (CS), Italy 2006 - 2007

Scientific Projects

- **Scientific Coordinator**

- **Scientific Coordinator.** 28/09/2023 - current
Scientific Coordinator of the **PRIN** project ”**iSafety: Leveraging artificial intelligence techniques to improve occupational and process safety in the iron and steel industry**” for the Institute for High-Performance Computing and Networking of the National Research Council (ICAR-CNR). The aim of the project is to define and implement a framework to enhance the physical safety of workers in the workplace, particularly in the steel sector.
- **Scientific Coordinator.** 01/01/2023 - current
Since 01/01/2023, he has been involved in the research activities of the **SEcurity and RIghts in the CyberSpace (SERICS)** project, funded under the National Recovery and Resilience Plan (PNRR). Specifically, he serves as the Scientific Director for the Institute of High-Performance Computing and Networking of the National Research Council (ICAR-CNR) within the Spoke4 (Securing Containers (SecCo) sub-project). The research activity focuses on the definition and implementation of Artificial Intelligence and Machine Learning methods, tools, and algorithms for the identification of threats based on Information Hiding techniques in Containers distributed across heterogeneous architectures (such as Cloud, Edge, Mobile, etc.). In particular, the project focuses on models based on the Deep Learning paradigm.
- **Scientific Coordinator.** 01/01/2020 - 31/12/2022
Scientific Coordinator within the framework of the contract between ITHEA s.r.l. and the Institute for High Performance Computing and Networking of the National Research Council (ICAR-CNR) stipulated for the project PON ”**CATCH 4.0 An intelligent Consumer-centric Approach To manage engagements, Contents & insigHts**” funded by the Ministry of Economic Development (MISE). The project aimed to define new methodologies, techniques, architectures, and software solutions based on Artificial Intelligence and Machine Learning capable of playing an enabling role in the creation of an analysis and prediction platform for customer engagement and satisfaction. The main contribution within the project was the definition of innovative Artificial Intelligence and Machine/Deep Learning solutions for user profiling and personalized content delivery, as well as semi-automatic methods for supervised analysis of multimedia content (images, videos, text).
- **Scientific Coordinator.** 01/12/2017 - 31/12/2019
Scientific Coordinator within the framework of the project ”**SPIDASEC – Processi e tecnologie innovative per la diffusione e la protezione dell’identita’ digitale basate su SPID**” funded by POR Calabria FESR-FSE 2014-2020 for ”*WP3- Definizione di tecniche di Machine Learning e Data Analytics per l’analisi dei profili di rischio delle entita’ coinvolte nell’infrastruttura SPID e degli usi impropri dell’infrastruttura stessa*”. The project focuses on the SPID system (public digital identity system) and specifically on an ecosystem that includes, on one side, the users of the digital identity (typically the end users), and on the other, the service providers and the identity providers. The research

activities aimed at developing new methodologies and techniques (mainly based on Ensemble and Deep Learning) for the detection of anomalous behaviors in the use of services.

- **Scientific Coordinator.** 01/03/2017 / 28/02/2019
Scientific coordinator within the framework of the project ”**iDESK – Innovative Digital Environment for Service desK**” funded by POR Calabria FESR-FSE 2014-2020 for ”*WP1-A1.1 Critical analysis of User Profiling methods and tools*”. The project aimed to develop new tools for the optimization, prediction of SLA violations, and identification of anomalous behaviors in Ticket Management Systems. This is achieved through the use of Machine Learning, NLP, and Process Mining techniques, which also provide interpretability of the outputs to the operator. The research activity aimed to critically study the technical-scientific literature in the field of user profiling systems, based on both supervised techniques (association rules and/or classification algorithms) and unsupervised techniques (clustering), in order to identify appropriate patterns for determining the category to which a specific user should be associated.

- **Participant**

- **Researcher.** 01/09/2023 - current
Participation as a Researcher in the PRIN project ”**WHAM! Watermarking Hazards and novel perspectives in Adversarial Machine learning**” for the Institute of High Performance Computing and Networks of the National Research Council (ICAR-CNR). The goal of WHAM! is to identify and study new approaches and methodologies to improve and certify the robustness of AI systems throughout the entire process (data, computation, and results).
- **Researcher.** 01/01/2023 - current
The undersigned is involved in the activities of the Research Project **SEcurity and RIghts in the CyberSpace (SERICS)**, funded under the National Recovery and Resilience Plan (PNRR). Specifically, he participates as a Researcher in the activities of spoke3 for the Institute of High Performance Computing and Networks of the National Research Council (ICAR-CNR) – Project in searCh Of eVidence of stEalth cybeR Threats / COVERT. The project aims to develop machine learning systems that are robust against attacks and through which it is possible to extract knowledge aimed at creating more advanced tools for timely analysis and early detection of attacks.
- **Researcher.** 01/01/2019 - 31/12/2022
Participation as a Researcher in the European project ”**CyberSec4Europe: Cyber Security Network of Competence Centres for Europe**” funded by the EU - Call for Proposal SU-ICT-03-2018 – Establishing and operating a pilot for a Cybersecurity Competence Network to develop and implement a common Cybersecurity Research & Innovation Roadmap. The project aimed to define and develop intelligent cybersecurity tools capable of meeting the new regulations set by the EU. The main contribution within the project concerns the definition of a predictive model that combines Ensemble Methods and Deep Learning for the identification of anomalies in the field of Intrusion Detection Systems and the design of an Advanced Threat Information Sharing platform based on MISP technology (Malware Information Sharing Platform).
- **Researcher.** 01/01/2019 - 31/12/2022
Participation as a Researcher within the national research project ”**SON – Secure Open Nets Distributed Ledgers for Secure Open Communities**” funded by the PON of the Ministry of Education, University and Research (MIUR). The project focused on the development of new methodologies, techniques, and software solutions that can play an enabling role for Blockchain technologies in the application contexts of privacy, sharing economy, and digital rights. The main contribution concerns the definition of Machine Learning methods and tools (mainly based on combinations of Deep Learning and Ensemble Learning) for the identification of anomalies on Distributed Ledgers.
- **Researcher at Determined Time.** 02/02/2015 – 26/12/2018
Participation as a Researcher within the national research project “**s3cureDig.IT - Cybersecurity Technological District**”. Funded by the Italian Ministry of Research, it includes private organizations (Poste Italiane, NTT Data, ICT Sud Consortium), Academic institutions (University of Calabria, University of Reggio Calabria) and Research Institutions (CNR). The focus is on research on big data

analytics aimed at cyber-security. Personal contribution: (i) Definition, modeling and implementation of a mathematical framework able to profile users according their risk score; (ii) Definition and modeling of an Unauthorized App Store Discovery Architecture. Exploiting an ensemble learning approach, the developed framework aims to identify, within both the traditional and the deep web (TOR network), alternative App Stores.

- **Post-doctoral Research Fellow.** 01/03/2012 – 31/01/2015
He was involved in the research activities of the Italian national project ”**FRAME - A flexible knowledge-based framework for the management of complex information systems**”. The project is aimed at building an integrated platform for the analysis of multidimensional unstructured data, based on the adoption of complex data mining techniques. It includes private organizations (Atos s.p.a. , Exeura) and Academic institutions (University of Calabria) and Research Institutions (CNR). Personal contribution: (i)Definition, modeling and implementation of a semantic video tagger. The idea is to give semantics to a collection of videos in order to enable efficient research by content; (ii) Definition, modeling and implementation of a system for monitoring KPI (Key Performance Indicators) in workflow management systems.
- **Research Fellow.** 06/09/2006 – 05/10/2007
He was involved in the research activities of the Italian national project ”**OpenKnowTech: Laboratorio di tecnologie per la integrazione, gestione e distribuzione di dati, processi e conoscenze**”. Technologies for integrating, managing, and distributing data, processes, and knowledge. Within the project, the aim is to investigate open-source solutions to business intelligence.
- **Research Fellow.** 02/11/2007 – 31/10/2009
He was involved in the research activities of the Italian national project ”**Studio, prototipazione e sperimentazione di tecniche di data mining per la costruzione di modelli previsionali finalizzati all’analisi di rischio sui crediti IVA**”. The research focused on developing novel machine learning approaches to tackle the fraud detection problem. The developed techniques have been employed in a real use case for detecting fraudulent VAT credit claims. The research was conducted in collaboration with Sogei s.p.a. (the body responsible for the development and management of the tax administration information system in Italy). Personal contribution: (i) Definition of a (rule-based) classification model able to detect and explain fraudulent behaviors, specifically the proposed model exploits an ensemble of (weak) rule-based classifiers to build a strong classification model; (ii) Definition of a (rule-based) regression model for detecting and ranking (top) fraudsters according to a score function based on the predicted fraud amount.
- **Research Fellow.** 06/09/2006 – 05/10/2007
He was involved in the research activities of the Italian national project ”**Discovery Farm - Sviluppo di una piattaforma per Pervasive Knowledge Management**”. The aim of the project was the development of an advanced platform for the Knowledge Management. Personal contribution: Design and development of a prototypal process mining suite able to handle large amounts of data extracted from process log

- **Other activities**

- **Scientific consulting** 01/05/2020 – 30/06/2022
Occasional self-employment contract for ITHEA s.r.l. for ”Advanced Machine Learning techniques for cyber threat intelligence (CTI) analysis of logs used to feed enterprise-level SIEM”.
- **Scientific consulting** 01/09/2020 – 28/02/2022
Occasional self-employment contract with the University of Calabria for scientific, methodological, and technical support for the identification of Machine Vision techniques within the Objective: OR4 ”Identification and evolution of AI techniques for machine vision” of the research project PON MAP4ID ”Multipurpose Analytics Platform 4 Industrial Data”.
- **Scientific consulting** 15/01/2018 – 26/01/2018
Occasional self-employment contract for OKT s.r.l. for technical-scientific support related to the design of recommendation systems based on Deep Neural Networks and latent factor embedded systems from

purchase data for a supermarket chain within the development of the Advisor Engine platform for NTT Data.

- **Scientific consulting** 05/09/2017 – 26/09/2017
Occasional self-employment contract for OKT s.r.l. for technical-scientific support related to recommendation systems based on Deep Neural Networks and latent factor embedded systems in the development of the Advisor Engine platform for NTT Data.
- **Scientific consulting** 09/11/2015 – 27/11/2015
Occasional self-employment contract for OKT s.r.l. as scientific advisor for the use of machine learning and data mining tools on social rating networks.
- **Scientific consulting** 11/11/2013 – 23/11/2013
Occasional self-employment contract for OKT s.r.l. as scientific advisor related for the use of machine learning and data mining tools on social networks.
- **Scientific consulting** 30/01/2012 – 29/02/2012
Occasional self-employment contract for ICAR-CNR for "Study and design of advanced services for health data management" within the European project "CHRONIOUS-European Project N.FP7-ICT-2007-1-216461".
- **Scientific consulting** 25/07/2011 – 24/10/2011
Occasional self-employment contract for ICAR-CNR for "Design and development of software components for the sharing of health documents".

Main research topics and applications

The research activity conducted by Massimo Guarascio falls within Behavior Analytics research field, which is the modeling and analysis of behavior and interactions among various entities operating within their environment. Specifically, the goal is to define new methodologies for Anomaly Detection (AD) based on behavioral analysis for complex systems. The term "behavior" refers to the actions and reactions undertaken by an entity, such as a human being or a smart object, in response to various stimuli or inputs. Recent technological advances in the field of data storage and management systems, along with the high computing power provided by the latest generation GPUs and Cloud systems, have made it possible to define and learn extremely accurate mathematical models capable of analyzing, understanding, and predicting the actions of such entities. In particular, behavioral analysis allows for detecting and identifying anomalies or unexpected behaviors within complex systems. This is particularly useful for recognizing out-of-the-ordinary situations that could indicate suspicious activities or potential threats. Through the application of AD techniques based on behavioral analysis, Massimo Guarascio aims to provide advanced tools and methodologies to improve the security, efficiency, and understanding of complex systems. This field of research represents a crucial area for Artificial Intelligence (AI), as it contributes to developing innovative solutions for the management and protection of increasingly sophisticated and interconnected systems. To date, the analysis and monitoring of complex systems represent a challenging and interesting task for research institutions and industrial entities, involving various disciplinary sectors and can be used in a wide range of applications in various domains such as computer networks, industrial processes, sensor networks for environmental and energy monitoring, social networks, etc. The goal is to model the behavior of the system under analysis and detect unexpected or anomalous events/behaviors to prevent them or, if not possible to predict, promptly identify them to activate the most effective set of countermeasures to limit their impacts.

During his research activities, as well as in those of technology transfer and dissemination, Massimo Guarascio has focused his efforts on defining new methodologies, techniques, and AD algorithms based on Machine/Deep Learning and Knowledge Discovery. These efforts focused on four main specific areas: (i) Cybersecurity and Fraud Detection, (ii) Process Mining (PM), (iii) Geoscience and Remote Sensing, and (iv) Recommender Systems (RecSys) and Multimedia Analytics.

- **AD for Cybersecurity and Fraud Detection.**

In recent years, the number of cyber attacks against organizations and users has grown significantly. Malicious actors have demonstrated the ability to compromise governmental computer systems and user devices, causing various types of damage. The COVID-19 epidemic has further exacerbated this situation: during the first

part of 2020, with the spread of the virus, the number of cyber attacks against organizations and businesses increased exponentially, peaking in April. In such a complex and constantly evolving context, Massimo Guarascio focused his research activity on defining AI tools and methods for the analysis of security data. These data include network traffic logs, user activity logs, VAT credit information, digital images, and social networks. However, the creation of effective tools requires addressing several challenges: the imbalance between cases of interest (attacks/frauds) and normal behaviors, noise in the data, the need to efficiently manage the huge volumes of information produced (big datastream), and data reliability undermine the capabilities of traditional detection systems.

Hence, Massimo Guarascio's main contribution concerns the development of scalable and incremental Machine/Deep (Ensemble) Learning techniques, Active Learning strategies, and interpretable rule-based models capable of addressing the issues described above for security scenarios. He has also been involved in defining tools for distributed and reliable Threat Information Sharing through the design and development of a system based on MISP (Malware Information Sharing Platform). Massimo Guarascio has authored several scientific articles published in important industry journals, contributions in volumes, technical reports, and works presented at international and national conferences. He has been the scientific head of WP research projects and has participated in national and international research projects on the subject, as well as being the author of prototype software integrated into industrial systems, released as open source for the scientific community, and awarded at international forums. He has also played the role of Lead Author and coordinator of the contributions of the deliverable in charge of the CNR within the European project Cybersec4Europe.

- **AD for Process Mining.**

The general objective of Process Mining (PM) is to discover a workflow model as complete as possible, fully supporting the logs recorded during the executions of a process of interest. PM techniques are valuable tools for analyzing business processes because they can extract useful information from data stored in logs. Moreover, these techniques can be applied to analyze event logs of various kinds, such as those produced by Ticket Management Systems, desktop and mobile apps, industrial processes, health data management systems, and more. However, while most traditional approaches focus on discovering flow control models, a different relevant research line for the scientific community involves the definition and use of predictive models. For instance, they can be leveraged to predict violations of Service Level Agreements (SLAs) or Constraints due to inefficiencies in the system under analysis, failures, or fraudulent behaviors. At the same time, these models provide an explanation of the yielded output, making the decisions taken more understandable. Nonetheless, traditional systems may exhibit poor performance because the multi-dimensional nature of logs does not allow for determining the best abstraction to use beforehand, the labeled data available for learning may be limited, and unstructured data (e.g., descriptions produced by the domain expert) may be added to the event data collected in the logs.

Massimo Guarascio's main contribution in this area, therefore, concerns the development of Machine/Deep (Ensemble) Learning techniques, Semi-Supervised Learning and Self-Training, Multi-View/Multi-Modal Learning, scalable distributed approaches (Cloud Computing Oriented), and interpretable predictive clustering models for the analysis of semi-structured (XML-like) and unstructured (text) data. Massimo Guarascio has authored several scientific articles published in important industry journals, contributions in volumes, technical reports, and works presented at international and national conferences. He has also been the scientific head and participated in national research projects on the subject. Finally, he is the author of prototype software integrated into industrial systems and released as open source for the scientific community.

- **AD for Geoscience and Remote Sensing.**

Providing an accurate estimate of the severity of meteorological events that can occur on potentially hazardous territory is crucial for mitigating the risks arising from floods and landslides. Additionally, predictive systems in this field are used by insurance companies to assess risk and by the agri-food supply chains to make timely decisions in response to extreme weather events, such as hailstorms.

Developing effective tools for identifying climate extreme events involves several challenges: the heterogeneity of available data sources (data from sensors and radars, satellite images, etc.), the scarcity of labeled data, and the imbalance between the number of anomalous cases and normal ones can undermine the accuracy of traditional systems based on interpolation models and historical series analysis.

In this context, Massimo Guarascio's main contribution concerns the development of scalable Machine/Deep (Ensemble) Learning techniques and methods capable of addressing the challenges of this complex scenario. Massimo Guarascio has authored scientific articles published in important journals and has presented works on this topic at international conferences. He has also designed and developed software products made available to the scientific community as open source. This research activity falls within the scope of the RAMSES project (RAMSES Project), whose goal was to mitigate the risk (due to extreme precipitation events) along the Calabrian railway network.

- **Recommender Systems and Multimedia Analytics.**

Accurately profiling users to provide product recommendations that match their tastes, predicting their future searches, adapting content display based on their main interests, and enhancing the experience of service usage is an important activity for many large companies, especially in sectors such as multimedia content distribution (movies, music, etc.). Although Recommender Systems (RecSys) have proven their effectiveness over time and are considered efficient tools, the recommendation lists produced may not take into account relevant information. This information can include the imbalance in the distribution of ratings, the sequence of purchase/viewing of items, social relationships, and the use of tags or classes (metadata) associated with the content. In particular, Content Enrichment (CR), which is the process of adding structure, context, and metadata to multimedia content, and the use of Knowledge Graphs in the recommendation process, represent emerging lines of great interest. However, automatic classification tools for CR often fail in this task, mainly due to the imbalanced distribution of data (infrequent tags acting as anomalies), noise in the data, and the need to use heterogeneous information.

Massimo Guarascio's main contribution in this area involves defining and developing Deep Learning models (Single and Multi Modal) for Content Enrichment and defining latent factor models for recommendation systems. He also defined XAI (eXplainable Artificial Intelligence) and XAL (eXplanatory Active Learning) based solutions to boost the effectiveness of the DL models. These innovative approaches aim to overcome existing challenges, improving the precision and effectiveness of recommendations, offering a personalized and satisfying experience to users. Massimo Guarascio is the author of several scientific articles presented at international and national conferences, published in volume contributions, and journals. He has been the scientific head on behalf of ICAR for a national research project, as well as the co-author of prototype software integrated into the project's output platform.

Recent Scientific Service

Conference Organization

- **2024:** Program Committee Member for the Workshop on Operating Systems and Virtualization Security (OSVS 2024) @ IEEE EuroS&P 2024 - <https://osvs.pages.dev/pc>
- **2024:** Program Committee Member for the European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD 2024).
- **2024:** Program Committee Member for 3rd International Workshop on HYbrid Models for Coupling Deductive and Inductive ReAsoning: HYDRA2024 - <https://sites.google.com/unicat.it/hydra-2024/organization>
- **2024:** Program Committee Member for the International Workshop on Cyber Use of Information Hiding to be held in conjunction with the International Conference on Availability, Reliability and Security (ARES 2024) - <https://www.ares-conference.eu/workshops/cuing/>.
- **2024:** Program Committee Member for the 27TH INTERNATIONAL SYMPOSIUM ON METHODOLOGIES FOR INTELLIGENT SYSTEMS (ISMIS 2024). <https://ismis2024.ensma.fr/committees/>.
- **2023:** Program Committee Member for the European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML/PKDD 2023).
- **2023:** Program Committee Member for the ACM Symposium On Applied Computing (ACM SAC 2023 - Data Mining Track).
- **2022:** Member of the Review Committee for the ACM Symposium On Applied Computing (ACM SAC 2022 - Machine Learning and its Application Track).

- **2021**: Program Committee Member for the European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML/PKDD 2021).
- **2020**: Program Committee Member for the 29th International Joint Conference on Artificial Intelligence (IJCAI-PRICAI 2020).
- **2020**: Program Committee Member for the 9th International Workshop on New Frontiers in Mining Complex Patterns (NFMCP 2020).
- **2019**: Program Committee Member for the 8th International Workshop on New Frontiers in Mining Complex Patterns (NFMCP 2019).

Reviewer activity.

– Journals reviewer.

He served as a reviewer for the following international journals:

- a) IEEE Transactions on Neural Networks and Learning Systems, IEEE, ISSN: 2162-237X, 2162-2388
- b) Knowledge-Based Systems, Elsevier, ISSN: 0950-7051
- c) Knowledge And Information Systems, Springer, ISSN: 0219-1377
- d) Expert Systems With Applications, Elsevier, ISSN: 0957-4174
- e) Future Generation Computer Systems, Elsevier, ISSN: 0167-739X
- f) IEEE Transactions on Services Computing, IEEE, ISSN: 1939-1374
- g) IEEE Transactions on Industrial Informatics, IEEE, ISSN: 1551-3203
- h) IEEE Transactions on Green Communications and Networking, IEEE, ISSN: 2473-2400
- i) Machine Learning journal, Springer, ISSN: 1573-0565, 0885-6125
- j) Pervasive and Mobile Computing, Elsevier, ISSN: 1574-1192
- k) Journal of Intelligent Information Systems, Springer, ISSN: 1573-7675, 0925-9902
- l) Engineering Applications of Artificial Intelligence, Elsevier, ISSN: 0952-1976
- m) Journal of Computer Virology and Hacking Techniques, Springer, ISSN: 2263-8733
- n) Intelligent Systems with Applications, ISSN: 2667-3053

– Conferences and Workshops reviewer.

He served as a reviewer for the following conferences and workshops:

- a) European Conference on Principles of Data Mining and Knowledge Discovery, PKDD 2010/2013/2021
- b) International Conference on Process Mining, ICPM 2020
- c) International Joint Conferences on Artificial Intelligence, IJCAI 2019
- d) International Conference on Data Mining, ICDM 2019
- e) Advances in Social Network Analysis and Mining, ASONAM 2019/2020
- f) Discovery Science, 2016/2018/2019/2020
- g) International Conference on Web Intelligence, WI 2016/2017
- h) International Symposium on Methodologies for Intelligent Systems, ISMIS 2015/2015/2017
- i) IEEE International Conference on Semantic Computing, ICSC 2014/2015/2018
- j) International Conference on Enterprise Information Systems, ICEIS 2013
- k) New Frontiers in Mining Complex Patterns, NFMCP 2012/2013/2015/2017/2019
- l) International Conference on Data Science and Advanced Analytics, DSAA 2014
- m) Italian Symposium on Advanced Database Systems, SEBD 2011/2022
- n) SIAM Data Mining Conference, SDM 2009

Participation in evaluation committees

Scientific Evaluator From 16-04-2020 to present
Evaluator of project proposals within the MiSE calls – Fund for Sustainable Growth, related to the SMART FACTORY sector.

Evaluation Committee Member 2020
Effective member and Scientific Manager for PUBLIC SELECTION, BY QUALIFICATIONS AND INTERVIEW, FOR THE AWARD OF N.1 "PROFESSIONALIZING" RESEARCH FELLOW - ICAR-006-2020-CS.

Evaluation Committee Member 2020
Effective member and Scientific Manager for PUBLIC SELECTION, BY QUALIFICATIONS AND INTERVIEW, FOR THE AWARD OF N.1 "PROFESSIONALIZING" RESEARCH FELLOW - call ICAR-005-2020-CS.

Evaluation Committee Member 2021
Effective member of the Commission for the public selection for the award of N.1 contract for work performance under occasional collaboration (notice N.1/2020/ICAR/CS).

Evaluation Committee Member 2019
Effective member of the Commission for the public selection for the award of N.1 contract for work performance under occasional collaboration (notice N.1/2019/ICAR/CS).

Evaluation Committee Member 2018
Effective member of the Commission for the public selection for the award of N.1 contract for work performance under occasional collaboration (notice N.1/2018/ICAR/CS).

Evaluation Committee Member 2017
Effective member of the Commission for the public selection for the award of N.1 contract for work performance under occasional collaboration (notice N.1/2017/ICAR/CS).

Awards and Honors

National Scientific Qualification, Italian Ministry of Education, Universities and Research. 2023
National Scientific Qualification (Abilitazione Scientifica Nazionale - ASN) as an associate professor in the Italian higher education system, in the 2021/2023 call for the disciplinary field of 01/B1 - Informatics.

Key Exploitation Result Award, European Project "CyberSec4Europe - Cybersecurity For Europe". 2022
Within the framework of the European project "CyberSec4Europe - Cybersecurity For Europe", Call of Proposal EU H2020-SU-ICT-03-2018 Project No. 830929, the research group of ICAR-CNR, of which the undersigned is a member, was awarded during the event "Momentum!" for developing one of the Key Exploitation Results of the project, the EBIDS-ORISHA system.

References: Webpage for the event: <https://cybersec4europe.eu/events/momentum/momentum-report/>, publications associated with the prototype and project document of the platform where the undersigned is the Lead Author <https://cybersec4europe.eu/the-cti-landscape-limitations-and-opportunities/>.

Best Paper Award, First EAI International Conference on Pervasive knowledge and collective intelligence on Web and Social Media (PerSOM). 2022

Best Paper Award Certificate for the paper titled: *Federated Learning for the Efficient Detection of Steganographic Threats Hidden in Image Icons*

Best Paper Award, 15th International Conference on Enterprise Information System (ICEIS). 2013
Best Paper Award Certificate in the Area of Database and Information Systems Integration for the paper titled: *A Data-adaptive Trace Abstraction Approach to the Prediction of Business Process Performance*

Conference Presentations

2023 - Speaker of the paper: Coppolillo E, Guarascio M, Minici M, Pisani F S: *Exploiting Deep Learning and Explanation Methods for Movie Tag Prediction*. International Database Engineered Applications Symposium (IDEAS '23), Heraklion, Crete, Greece. Association for Computing Machinery.

2023 - Speaker of the paper: Liguori A, Mungari S, Zuppelli M, Comito C, Cambiaso E, Repetto E, Guarascio M, Caviglione L, Manco G: *Using AI to face covert attacks in IoT and softwarized scenarios: challenges and opportunities*. Third National CINI Conference on Artificial Intelligence, ITAL-IA 2023, Pisa, Italy.

2022 - Speaker of the paper: Cassavia N, Caviglione L, Guarascio M, Liguori A, Surace G, Zuppelli M: *Federated Learning for the Efficient Detection of Steganographic Threats Hidden in Image Icons*. Pervasive Knowledge and Collective Intelligence on Web and Social Media - First EAI International Conference, PerSOM 2022, Messina, Italy, November 17-18, 2022.

2022 - Speaker of the paper: Cassavia N, Folino F, Guarascio M: *Detecting DoS and DDoS Attacks through Sparse U-Net-like Autoencoders*. IEEE 34th International Conference on Tools with Artificial Intelligence (ICTAI), Macao, China, 2022.

2021 - Speaker of the paper: Zuppelli M, Manco G, Caviglione L., Guarascio M: *Sanitization of Images Containing Stegomalware via Machine Learning Approaches*. ITASEC 2021, Ancona, Italy.

2019 - Speaker of the paper: Folino G, Guarascio M, Chiaravalloti F, Gabriele S: *A Deep Learning based architecture for rainfall estimation integrating heterogeneous data sources*. International Joint Conference on Neural Networks (IJCNN), Budapest, Hungary 2019.

2019 - Speaker of the paper: Guarascio M, Manco G, Pirro' G, Ritacco E: *Machine Learning for Behavior Analytics and Recommender Systems*. First National CINI Conference on Artificial Intelligence, ITAL-IA 2019, Rome, Italy.

Software prototypes

Name: EMCEE (Extreme Multi-label Classifier and ExplainEr) integrated into the Catch 4.0 Platform

Product Type: Software Product

Description: Prototype developed in Python language using libraries (Pandas, Numpy, Pytorch)

Role: Definition, design, and development

Documentation: link to the demo - <https://www.youtube.com/watch?v=IhuV-LkGtks>

Additional Information: The AI engine, EMCEE, is integrated within the platform developed within the Catch 4.0 project and is being commercialized by Ithea srl

Name: Ensemble Based Intrusion Detection System - EBIDS

Product Type: Software Product

Description: Prototype developed in Python language using libraries (Pandas, Numpy, Tensorflow, and Keras)

Role: Definition, design, and development

Documentation: https://github.com/massimo-guarascio/cs4e_ebids_asset, <https://doi.org/10.1016/j.inffus.2021.02.007>

Additional Information: EBIDS is part of the ORISHA-EBIDS system awarded as Key Exploitation Result of the European project Cybersec4Europe

Name: UASD - Unauthorized App Store Discovery

Product Type: Software Product

Description: Prototype developed in Java and Python languages for the identification on the web and dark web of alternative and potentially malicious app-stores

Role: Designer, developer, collaborator in research activities

Documentation: https://link.springer.com/chapter/10.1007/978-3-319-78680-3_8

Additional Information: The prototype is one of the services of MASM (Mobile Apps Security Monitoring), the platform of Poste Italiane CERT

Name: Deviance Detection Model - Prototype

Product Type: Software Product

Description: Java language prototype of a predictive model for the identification of deviant traces in process logs

Role: Definition, design, and development

Documentation: <http://staff.icar.cnr.it/pontieri/mv-deviance-detection/Home.htm>

Name: Feed4Weka

Product Type: Software Product

Description: Java language extension of the Weka platform that integrates various types of algorithms (e.g., co-clustering, outlier detection), visualization tools, and a new classification technique

Role: Definition, design, and development

Documentation: <https://sourceforge.net/projects/feed4weka/files/?source=navbar>

Name: OKT process mining suite (PMS)

Product Type: Software Product

Description: Platform, developed in Java language, for the analysis of processes and event logs

Role: Definition, design, and development

Documentation: article - <http://ceur-ws.org/Vol-855/paper7.pdf>

Additional Information: Part of the platform has merged into "Rialto Process," a plugin of the Rialto Platform by Revelis srl, <https://www.revelis.eu/prodotti/rialto-2/>

Spin-off activities

Shareholder.

03-2013 - Current

He is co-founder of Open Knowledge Technologies S.r.l. (OKT). Since 2014, the company has been a spin-off of the University of Calabria and is engaged in designing and implementing innovative and scalable solutions based on Machine Learning and Big Data Analytics in the fields of Cyber Security, Tourism, and Recommendation Systems. OKT is currently a company of the Relatech S.p.A. Group, and within the group, it primarily deals with research and development activities. Within the company, he serves as a scientific advisor for expertise in Artificial Intelligence and Machine Learning for Cybersecurity and Recommender Systems. Web Site: <http://www.okt-srl.com/index.html>

Teaching Experience

Academic Courses.

- **Period:** 2013 – 2014
Name of University/Institution/Company: University of Calabria, Department of Political and Social Sciences
Location: Via Pietro Bucci - 87036 Rende (CS)
Role: Teaching Assistant
Course: Fundamentals of Computer Science, BSc Political Science
- **Period:** 2010 – 2011
Name of University/Institution/Company: University of Calabria, Faculty of Engineering
Location: Via Pietro Bucci - 87036 Rende (CS)
Role: Teaching Assistant
Course: Data Mining and Knowledge Discovery, MSc Computer Engineering
- **Period:** 2009 – 2010
Name of University/Institution/Company: University of Calabria, Faculty of Mathematics, Physics, and Natural Sciences (S.M.N.F.)
Location: Via Pietro Bucci - 87036 Rende (CS)
Role: Teaching Assistant
Course: Data Mining, MSc Computer Science
- **Period:** 2008 – 2009
Name of University/Institution/Company: University of Calabria
Location: Via Pietro Bucci - 87036 Rende (CS)
Role: Teaching Assistant
Courses:

- a) Programming Laboratory, BSc Computer Engineering, Faculty of Engineering
 - b) Data Mining and Knowledge Discovery, MSc Computer Engineering, Faculty of Engineering
 - c) Fundamentals of Computer Science I, Faculty of Political Science
 - d) Fundamentals of Computer Science II, Faculty of Political Science
- **Period:** 2007 – 2008
Name of University/Institution/Company: University of Calabria
Location: Via Pietro Bucci - 87036 Rende (CS)
Role: Teaching Assistant
Courses:
- a) Programming Laboratory, BSc Computer Engineering, Faculty of Engineering
 - b) Introduction to Computer Science, BSc Computer Engineering, Faculty of Engineering
 - c) Fundamentals of Computer Science I, Faculty of Political Science
- **Period:** 2006 – 2007
Name of University/Institution/Company: University of Calabria, Faculty of Engineering
Location: Via Pietro Bucci - 87036 Rende (CS)
Role: Teaching Assistant
Courses:
- a) Programming Laboratory, BSc Computer Engineering
 - b) Languages and Compilers, BSc Computer Engineering
 - c) Introduction to Computer Science, BSc Computer Engineering

Master courses for Institutions and Companies.

- **Period:** 14/10/2019 – 31/12/2019
Name of University/Institution/Company: Revelis s.r.l.
Location: J.F. Kennedy, 126, Rende (CS)
Role: Lecturer
Course: Course on Deep Learning techniques.
- **Period:** 4-6 December 2018
Name of University/Institution/Company: Xacria s.r.l.
Location: Viale Odorico da Pordenone, 33, 95128 Catania
Role: Lecturer
Course: Course on Big Data Analytics and Data Science.
- **Period:** 26-31 July 2018
Name of University/Institution/Company: CSIA – Consortium for the Development of Advanced Computer Systems
Location: Via G. Tommasi, 25, 87100, Cosenza
Role: Lecturer
Course: Course on Big Data Analytics and Data Science.
- **Period:** 01/07/2014 – 30/07/2014
Name of University/Institution/Company: ICT-SUD Competence Center
Location: Piazza Vermicelli - 87036 Rende (CS)
Role: Teaching Assistant
Course: Teaching assistance activities within the research project "PON4a2_D DICET-INMOTO Organization of Cultural Heritage for Smart Tourism and Real time Accessibility OR.C.HE.S.T.R.A".
- **Period:** 24-07-2012 to 31-08-2012
Name of University/Institution/Company: University of Calabria
Location: Via Pietro Bucci - 87036 Rende (CS)
Role: Lecturer
Course: Teaching activities on open-source data mining tools within the research project "PON01_00451 Tetris Innovative Open Source Services on Tetra".

- **Period:** 10 hours of laboratory, May 2010
- Name of University/Institution/Company:** University of Calabria
- Location:** Via Pietro Bucci - 87036 Rende (CS)
- Role:** Lecturer
- Course:** Teaching activities on tools for Management and Knowledge Discovery within the public-private laboratory on Open Source Software (Project DM 21301).

Thesis co-supervisor.

- **Co-Supervisor.** 2021 - 2022
Co-supervisor of the thesis titled ” *Federated Learning for the Detection of Steganographic Threats Hidden in Digital Images*”, Master’s Degree in Artificial Intelligence and Machine Learning, Department of Computer Engineering, Modeling, Electronics, and Systems, University of Calabria. Candidate: Giuseppe Surace. Supervisors: Giuseppe Manco, Massimo Guarascio.
- **Co-Supervisor.** 2015 - 2016
Co-supervisor of the thesis titled ” *Unauthorized-App Store Discovery: a platform for Market Discovery on WEB and Deep WEB*”, MASTER’S DEGREE IN COMPUTER ENGINEERING, FACULTY OF COMPUTER ENGINEERING, University of Calabria. Candidate: Francesco Tozzo. Supervisors: Domenica Saccà, Massimo Guarascio.

Language skills

Mother tongue(s): Italian

Other language(s):

- English

Bibliometric Indexes

Source Scopus: 78 prodotti, H-Index 15, 592 citazioni

Source Google Scholar: 92 prodotti, H-Index 17, 873 citazioni

Publications List

Journals Articles

- [J1] F. Folino, G. Folino, M. Guarascio, L. Pontieri, and P. Zicari. Towards data- and compute-efficient fake-news detection: An approach combining active learning and pre-trained language models. *SN Computer Science*, 5(5), 2024.
- [J2] F. Folino, G. Folino, M. Guarascio, and L. Pontieri. Data- & compute-efficient deviance mining via active learning and fast ensembles. *Journal of Intelligent Information Systems*, 2024.
- [J3] M. Guarascio, M. Minici, F. S. Pisani, E. De Francesco, and P. Lambardi. Movie tag prediction: An extreme multi-label multi-modal transformer-based solution with explanation. *Journal of Intelligent Information Systems*, January 2024.
- [J4] S. Cicero, M. Guarascio, A. Guerrieri, and S. Mungari. A deep anomaly detection system for iot-based smart buildings. *Sensors*, 23(23):9331, November 2023.
- [J5] N. Cassavia, L. Caviglione, M. Guarascio, A. Liguori, G. Manco, and M. Zuppelli. A federated approach for detecting data hidden in icons of mobile applications delivered via web and multiple stores. *Social Network Analysis and Mining*, 13(1), 2023.
- [J6] N. Cassavia, L. Caviglione, M. Guarascio, A. Liguori, and M. Zuppelli. Learning autoencoder ensembles for detecting malware hidden communications in iot ecosystems. *Journal of Intelligent Information Systems*, pages 1–25, 2023.
- [J7] V. Barbara, M. Guarascio, N. Leone, G. Manco, A. Quarta, F. Ricca, and E. Ritacco. Neuro-symbolic AI for compliance checking of electrical control panels. *Theory and Practice of Logic Programming*, 23(4):748–764, 2023.
- [J8] L. Caviglione, C. Comito, M. Guarascio, and G. Manco. Emerging challenges and perspectives in deep learning model security: A brief survey. *Systems and Soft Computing*, 5, 2023.
- [J9] G. Folino, M. Guarascio, L. Pontieri, and P. Zicari. An explainable deep ensemble framework for intelligent ticket management. *ERCIM News*, 2023(134), 2023.
- [J10] G. Folino, M. Guarascio, and F. Chiaravalloti. Learning ensembles of deep neural networks for extreme rainfall event detection. *Neural Computing and Applications*, 2023.
- [J11] N. Cassavia, L. Caviglione, M. Guarascio, G. Manco, and M. Zuppelli. Detection of steganographic threats targeting digital images in heterogeneous ecosystems through machine learning. *Journal of Wireless Mobile Networks, Ubiquitous Computing, and Dependable Applications*, 13(3):50–67, 09 2022.
- [J12] M. Guarascio, N. Cassavia, F.S. Pisani, and G. Manco. Boosting cyber-threat intelligence via collaborative intrusion detection. *Future Generation Computer Systems*, 135:30–43, 2022.
- [J13] P. Zicari, G. Folino, M. Guarascio, and L. Pontieri. Combining deep ensemble learning and explanation for intelligent ticket management. *Expert Systems with Applications*, 206, 2022.
- [J14] F. Folino, G. Folino, M. Guarascio, and L. Pontieri. Semi-supervised discovery of dnn-based outcome predictors from scarcely-labeled process logs. *Business and Information Systems Engineering*, 2022.
- [J15] F. Folino, G. Folino, M. Guarascio, F.S. Pisani, and L. Pontieri. On learning effective ensembles of deep neural networks for intrusion detection. *Information Fusion*, 72:48–69, 2021.
- [J16] M. Guarascio, G. Folino, F. Chiaravalloti, S. Gabriele, A. Procopio, and P. Sabatino. A machine learning approach for rainfall estimation integrating heterogeneous data sources. *IEEE Transactions on Geoscience and Remote Sensing*, 2020.
- [J17] G. Folino, M. Guarascio, F. Chiaravalloti, and S. Gabriele. Using deep learning and data integration for accurate rainfall estimates. *ERCIM News*, 2020(122), 2020.

- [J18] G. Folino, M. Guarascio, and G. Papuzzo. Exploiting fractal dimension and a distributed evolutionary approach to classify data streams with concept drifts. *Applied Soft Computing Journal*, 75:284–297, 2019.
- [J19] A. Cuzzocrea, F. Folino, M. Guarascio, and L. Pontieri. Predictive monitoring of temporally-aggregated performance indicators of business processes against low-level streaming events. *Information Systems*, 81:236–266, 2019.
- [J20] A. Cuzzocrea, F. Folino, M. Guarascio, and L. Pontieri. Deviance-aware discovery of high-quality process models. *International Journal on Artificial Intelligence Tools*, 27(7), 2018.
- [J21] A. Cuzzocrea, F. Folino, M. Guarascio, and L. Pontieri. A robust and versatile multi-view learning framework for the detection of deviant business process instances. *International Journal of Cooperative Information Systems*, 25(4), 2016.

Conference and Workshop Proceedings

- [C1] I. Khan, F. C. Delicato, E. Greco, M. Guarascio, A. Guerrieri, and G. Spezzano. Occupancy prediction in multi-occupant iot environments leveraging federated learning. In *IEEE Intl Conf on Dependable, Autonomic and Secure Computing, Intl Conf on Pervasive Intelligence and Computing, Intl Conf on Cloud and Big Data Computing, Intl Conf on Cyber Science and Technology Congress, DASC/PiCom/CBDCOM/CyberSciTech 2023, Abu Dhabi, United Arab Emirates, November 14-17, 2023*, pages 36–43. IEEE, 2023.
- [C2] P. Zicari, M. Guarascio, L. Pontieri, and G. Folino. Learning deep fake-news detectors from scarcely-labelled news corpora. In *Proceedings of the 25th International Conference on Enterprise Information Systems, ICEIS 2023, Volume 1, Prague, Czech Republic, April 24-26, 2023*, pages 344–353. SCITEPRESS, 2023.
- [C3] E. Coppolillo, M. Guarascio, M. Minici, and F. S. Pisani. Exploiting deep learning and explanation methods for movie tag prediction. In *Proceedings of the International Database Engineered Applications Symposium Conference, IDEAS 2023, Heraklion, Crete, Greece, May 5-7, 2023*, pages 177–184. ACM, 2023.
- [C4] A. Liguori, S. Mungari, M. Zuppelli, C. Comito, E. Cambiaso, M. Repetto, M. Guarascio, L. Caviglione, and G. Manco. Using AI to face covert attacks in iot and softwarized scenarios: challenges and opportunities. In *Proceedings of the Italia Intelligenza Artificiale - Thematic Workshops co-located with the 3rd CINI National Lab AIIS Conference on Artificial Intelligence (Ital IA 2023), Pisa, Italy, May 29-30, 2023*, volume 3486 of *CEUR Workshop Proceedings*, pages 397–402. CEUR-WS.org, 2023.
- [C5] E. Coppolillo, C. Comito, M. Minici, E. Ritacco, G. Folino, F. S. Pisani, M. Guarascio, and G. Manco. Fighting misinformation, radicalization and bias in social media. In *Proceedings of the Italia Intelligenza Artificiale - Thematic Workshops co-located with the 3rd CINI National Lab AIIS Conference on Artificial Intelligence (Ital IA 2023), Pisa, Italy, May 29-30, 2023*, volume 3486 of *CEUR Workshop Proceedings*, pages 443–448. CEUR-WS.org, 2023.
- [C6] C. Comito, F. S. Pisani, E. Coppolillo, A. Liguori, M. Guarascio, and G. Manco. Towards self-supervised cross-domain fake news detection. In *Proceedings of the Italian Conference on Cyber Security (ITASEC 2023), Bari, Italy, May 2-5, 2023*, volume 3488 of *CEUR Workshop Proceedings*. CEUR-WS.org, 2023.
- [C7] L. Caviglione, C. Comito, M. Guarascio, G. Manco, F. S. Pisani, and M. Zuppelli. ORISHA: improving threat detection through orchestrated information sharing (discussion paper). In *Proceedings of the 31st Symposium of Advanced Database Systems, Galzignano Terme, Italy, July 2nd to 5th, 2023*, volume 3478 of *CEUR Workshop Proceedings*, pages 514–524. CEUR-WS.org, 2023.
- [C8] M. Guarascio, M. Zuppelli, N. Cassavia, L. Caviglione, and G. Manco. Revealing magecart-like threats in favicons via artificial intelligence. In *ARES 2022: The 17th International Conference on Availability, Reliability and Security, Vienna, Austria, August 23 - 26, 2022*, pages 45:1–45:7. ACM, 2022.
- [C9] V. Barbara, D. Buelli, M. Guarascio, S. Ierace, S. Iiritano, G. Labocetta, N. Leone, G. Manco, V. Pesenti, A. Quarta, F. Ricca, and E. Ritacco. A loosely-coupled neural-symbolic approach to compliance of electric panels. In *Proceedings of the 37th Italian Conference on Computational Logic, Bologna, Italy, June 29 - July 1, 2022*, volume 3204 of *CEUR Workshop Proceedings*, pages 247–253. CEUR-WS.org, 2022.

- [C10] N. Cassavia, F. Folino, and M. Guarascio. Detecting dos and ddos attacks through sparse u-net-like autoencoders. In *34th IEEE International Conference on Tools with Artificial Intelligence, ICTAI 2022, Macao, China, October 31 - November 2, 2022*, pages 1342–1346. IEEE, 2022.
- [C11] M. Minici, F. S. Pisani, M. Guarascio, E. De F., and P. Lambardi. Learning and explanation of extreme multi-label deep classification models for media content. In *Foundations of Intelligent Systems - 26th International Symposium, ISMIS 2022, Cosenza, Italy, October 3-5, 2022, Proceedings*, volume 13515 of *Lecture Notes in Computer Science*, pages 138–148. Springer, 2022.
- [C12] N. Cassavia, L. Caviglione, M. Guarascio, A. Liguori, and M. Zuppelli. Ensembling sparse autoencoders for network covert channel detection in iot ecosystems. In *Foundations of Intelligent Systems - 26th International Symposium, ISMIS 2022, Cosenza, Italy, October 3-5, 2022, Proceedings*, volume 13515 of *Lecture Notes in Computer Science*, pages 209–218. Springer, 2022.
- [C13] F. Folino, G. Folino, M. Guarascio, and L. Pontieri. Combining active learning and fast DNN ensembles for process deviance discovery. In *Foundations of Intelligent Systems - 26th International Symposium, ISMIS 2022, Cosenza, Italy, October 3-5, 2022, Proceedings*, volume 13515 of *Lecture Notes in Computer Science*, pages 346–356. Springer, 2022.
- [C14] M. Guarascio, M. Zuppelli, N. Cassavia, G. Manco, and L. Caviglione. Detection of network covert channels in iot ecosystems using machine learning. In *Proceedings of the Italian Conference on Cybersecurity (ITASEC 2022), Rome, Italy, June 20-23, 2022*, volume 3260 of *CEUR Workshop Proceedings*, pages 102–113. CEUR-WS.org, 2022.
- [C15] N. Cassavia, L. Caviglione, M. Guarascio, A. Liguori, G. Surace, and M. Zuppelli. Federated learning for the efficient detection of steganographic threats hidden in image icons. In *Pervasive Knowledge and Collective Intelligence on Web and Social Media - First EAI International Conference, PerSOM 2022, Messina, Italy, November 17-18, 2022, Proceedings*, volume 494 of *Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering*, pages 83–95. Springer, 2022.
- [C16] M. Minici, F. S. Pisani, M. Guarascio, and G. Manco. Towards extreme multi-label classification of multimedia content. In *Proceedings of the 30th Italian Symposium on Advanced Database Systems, SEBD 2022, Tirrenia (PI), Italy, June 19-22, 2022*, volume 3194 of *CEUR Workshop Proceedings*, pages 367–374. CEUR-WS.org, 2022.
- [C17] M. Zuppelli, G. Manco, L. Caviglione, and M. Guarascio. Sanitization of images containing stegomalware via machine learning approaches. In *Proceedings of the Italian Conference on Cybersecurity, ITASEC 2021, All Digital Event, April 7-9, 2021*, volume 2940 of *CEUR Workshop Proceedings*, pages 374–386. CEUR-WS.org, 2021.
- [C18] P. Zicari, G. Folino, M. Guarascio, and L. Pontieri. Discovering accurate deep learning based predictive models for automatic customer support ticket classification. In *SAC '21: The 36th ACM/SIGAPP Symposium on Applied Computing, Virtual Event, Republic of Korea, March 22-26, 2021*, pages 1098–1101. ACM, 2021.
- [C19] F. Scicchitano, A. Liguori, M. Guarascio, E. Ritacco, and G. Manco. Deep autoencoder ensembles for anomaly detection on blockchain. In *Foundations of Intelligent Systems - 25th International Symposium, ISMIS 2020, Graz, Austria, September 23-25, 2020, Proceedings*, volume 12117 of *Lecture Notes in Computer Science*, pages 448–456. Springer, 2020.
- [C20] F. Scicchitano, A. Liguori, M. Guarascio, E. Ritacco, and G. Manco. A deep learning approach for detecting security attacks on blockchain. In *Proceedings of the Fourth Italian Conference on Cyber Security, Ancona, Italy, February 4th to 7th, 2020*, volume 2597 of *CEUR Workshop Proceedings*, pages 212–222. CEUR-WS.org, 2020.
- [C21] F. Folino, G. Folino, M. Guarascio, and L. Pontieri. A multi-view ensemble of deep models for the detection of deviant process instances. In *ECML PKDD 2020 Workshops - Workshops of the European Conference on Machine Learning and Knowledge Discovery in Databases (ECML PKDD 2020): SoGood 2020, PDFL 2020, MLCs 2020, NFMCP 2020, DINA 2020, EDML 2020, XKDD 2020 and INRA 2020, Ghent, Belgium, September 14-18, 2020, Proceedings*, volume 1323 of *Communications in Computer and Information Science*, pages 249–262. Springer, 2020.

- [C22] F. Folino, M. Guarascio, A. Liguori, G. Manco, L. Pontieri, and E. Ritacco. Exploiting temporal convolution for activity prediction in process analytics. In *ECML PKDD 2020 Workshops - Workshops of the European Conference on Machine Learning and Knowledge Discovery in Databases (ECML PKDD 2020): SoGood 2020, PDFL 2020, MLCS 2020, NFMCP 2020, DINA 2020, EDML 2020, XKDD 2020 and INRA 2020, Ghent, Belgium, September 14-18, 2020, Proceedings*, volume 1323 of *Communications in Computer and Information Science*, pages 263–275. Springer, 2020.
- [C23] F. Folino, G. Folino, M. Guarascio, and L. Pontieri. Learning effective neural nets for outcome prediction from partially labelled log data. In *31st IEEE International Conference on Tools with Artificial Intelligence, ICTAI 2019, Portland, OR, USA, November 4-6, 2019*, pages 1396–1400. IEEE, 2019.
- [C24] G. Folino, M. Guarascio, F. Chiaravalloti, and S. Gabriele. A deep learning based architecture for rainfall estimation integrating heterogeneous data sources. In *International Joint Conference on Neural Networks, IJCNN 2019 Budapest, Hungary, July 14-19, 2019*, pages 1–8. IEEE, 2019.
- [C25] G. Manco, E. Ritacco, N. Sachdeva, and M. Guarascio. Deep sequential modeling for recommendation. In *Proceedings of the 27th Italian Symposium on Advanced Database Systems, Castiglione della Pescaia (Grosseto), Italy, June 16-19, 2019*, volume 2400 of *CEUR Workshop Proceedings*. CEUR-WS.org, 2019.
- [C26] A. Cuzzocrea, F. Folino, M. Guarascio, and L. Pontieri. A predictive learning framework for monitoring aggregated performance indicators over business process events. In *Proceedings of the 22nd International Database Engineering & Applications Symposium, IDEAS 2018, Villa San Giovanni, Italy, June 18-20, 2018*, pages 165–174. ACM, 2018.
- [C27] A. Cuzzocrea, F. Folino, M. Guarascio, and L. Pontieri. Extensions, analysis and experimental assessment of a probabilistic ensemble-learning framework for detecting deviances in business process instances. In *ICEIS 2017 - Proceedings of the 19th International Conference on Enterprise Information Systems, Volume 1, Porto, Portugal, April 26-29, 2017*, pages 162–173. SciTePress, 2017.
- [C28] F. Folino, M. Guarascio, and L. Pontieri. A descriptive clustering approach to the analysis of quantitative business-process deviances. In *Proceedings of the Symposium on Applied Computing, SAC 2017, Marrakech, Morocco, April 3-7, 2017*, pages 765–770. ACM, 2017.
- [C29] A. Cuzzocrea, F. Folino, M. Guarascio, and L. Pontieri. Deviance-aware discovery of high quality process models. In *29th IEEE International Conference on Tools with Artificial Intelligence, ICTAI 2017, Boston, MA, USA, November 6-8, 2017*, pages 724–731. IEEE Computer Society, 2017.
- [C30] E. Cesario, F. Folino, M. Guarascio, and L. Pontieri. A cloud-based prediction framework for analyzing business process performances. In *Availability, Reliability, and Security in Information Systems - IFIP WG 8.4, 8.9, TC 5 International Cross-Domain Conference, CD-ARES 2016, and Workshop on Privacy Aware Machine Learning for Health Data Science, PAML 2016, Salzburg, Austria, August 31 - September 2, 2016, Proceedings*, volume 9817 of *Lecture Notes in Computer Science*, pages 63–80. Springer, 2016.
- [C31] A. Cuzzocrea, F. Folino, M. Guarascio, and L. Pontieri. A multi-view multi-dimensional ensemble learning approach to mining business process deviances. In *2016 International Joint Conference on Neural Networks, IJCNN 2016, Vancouver, BC, Canada, July 24-29, 2016*, pages 3809–3816. IEEE, 2016.
- [C32] F. Folino, M. Guarascio, and L. Pontieri. Mining multi-variant process models from low-level logs. In Witold Abramowicz, editor, *Business Information Systems - 18th International Conference, BIS 2015, Poznań, Poland, June 24-26, 2015, Proceedings*, volume 208 of *Lecture Notes in Business Information Processing*, pages 165–177. Springer, 2015.
- [C33] F. Folino, M. Guarascio, and L. Pontieri. A prediction framework for proactively monitoring aggregate process-performance indicators. In *19th IEEE International Enterprise Distributed Object Computing Conference, EDOC 2015, Adelaide, Australia, September 21-25, 2015*, pages 128–133. IEEE Computer Society, 2015.
- [C34] F. Folino, M. Guarascio, and L. Pontieri. On the discovery of explainable and accurate behavioral models for complex lowly-structured business processes. In *ICEIS 2015 - Proceedings of the 17th International Conference on Enterprise Information Systems, Volume 1, Barcelona, Spain, 27-30 April, 2015*, pages 206–217. SciTePress, 2015.

- [C35] A. Cuzzocrea, F. Folino, M. Guarascio, and L. Pontieri. A multi-view learning approach to the discovery of deviant process instances. In *On the Move to Meaningful Internet Systems: OTM 2015 Conferences - Confederated International Conferences: CoopIS, ODBASE, and C&TC 2015, Rhodes, Greece, October 26-30, 2015, Proceedings*, volume 9415 of *Lecture Notes in Computer Science*, pages 146–165. Springer, 2015.
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Declarations

- *According to law 679/2016 of the Regulation of the European Parliament of 27th April 2016, I hereby express my consent to process and use my data provided in this CV.*

Rende (CS), 04/06/2024

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