

Roberto Saia

Curriculum Vitae



Education

- 2016 **PhD in Computer Science**, *Department of Mathematics and Computer Science, University of Cagliari, Cagliari, Italy*
Doctoral dissertation about “Similarity and Diversity: Two Sides of the Same Coin in the Evaluation of Data Streams”, earned on March 07, 2016 (summa cum laude)
- 2012 **Master’s Degree in Computer Science**, *Department of Mathematics and Computer Science, University of Cagliari, Cagliari, Italy*
Research thesis about “Implementing a New Soft Real Time Scheduling Class in Linux Kernel”, graduated on September 20, 2012 (final mark 103/110)
- 2010 **Bachelor’s Degree in Computer Science**, *Department of Mathematics and Computer Science, University of Cagliari, Cagliari, Italy*
Research thesis about “Collaborative Information Retrieval Algorithm”, graduated on February 25, 2010 (final mark 102/110)

Summary

I work as a ”Postdoctoral Researcher” at the Department of Mathematics and Computer Science of the University of Cagliari, Italy. My research involves Data Mining, Computer Vision, Artificial Intelligence, and Data Security domains, and it is mainly oriented toward the design and development of new approaches for Recommender, Credit Scoring, Fraud Detection, Intrusion Detection, Image Recognition, and Blockchain-based Systems.

Publications

Academic

- 2024 R. Saia, S. Carta, G. Fenu, S. Podda, L. Pompianu. “Enhancing IDS with Ensemble LSTM Networks Using Real and GAN Data”. In proceedings of the 34th IEEE International Telecommunication Networks and Applications Conference (ITNAC-2024), Sydney, Australia.
- 2024 R. Saia, R. Balia, S. Podda, L. Pompianu, S. Carta, A. Pisu. “EEG Biometrics with GAN Integration for Secure Smart City Data Access”. In proceedings of the 8th International Conference on Computer-Human Interaction Research and Applications (CHIRA-2024), Porto, Portugal.
- 2024 R. Saia, R. Balia, S. Podda, L. Pompianu, S. Carta, A. Pisu. “Enhancing EEG-Based User Verification with a Normalized Neural Network Ensemble Approach”. In proceedings of the 8th International Conference on Computer-Human Interaction Research and Applications (CHIRA-2024), Porto, Portugal.
- 2024 S. Podda, R. Balia, L. Pompianu, S. Carta, G. Fenu, R. Saia. “CARgram: CNN-based Accident Recognition from Road Sounds through Intensity-Projected Spectrogram Analysis”. Accepted for publication in Digital Signal Processing, Elsevier.
- 2023 S. Barra, M. Marras, S. Mohamed, S. Podda, R. Saia. “Can Existing 3D Monocular Object Detection Methods Work in Roadside Contexts? A Reproducibility Study”. In proceedings of the 22nd International Conference of the Italian Association for Artificial Intelligence (AIXIA 2023), Rome, Italy.
- 2023 R. Saia, S. Carta, G. Fenu, L. Pompianu. “Leveraging the Training Data Partitioning to Improve Events Characterization in Intrusion Detection Systems”. In proceedings of the 16th International Conference on Computer Science and Information Technology (ICCSIT-2023), Paris, France.

- 2023 R. Saia, S. Carta, G. Fenu, L. Pompianu. "Influencing Brain Waves by Evoked Potentials as Biometric Approach: Taking Stock of the Last Six Years of Research". Accepted for publication in *Neural Computing and Applications*. Springer.
- 2023 R. Saia, S. Carta, G. Fenu, L. Pompianu. "Brain Waves combined with Evoked Potentials as Biometric Approach for User Identification: a Survey". In proceedings of the Intelligent Systems Conference (IntelliSys-2023), Amsterdam, Netherlands.
- 2022 R. Balia, A. Giuliani, L. Piano, A. Pisu, R. Saia, N. Sansoni. "A comparison of audio-based deep learning methods for detecting anomalous road events". In proceedings of the 13th International Conference on Emerging Ubiquitous Systems and Pervasive Networks (EUSPN-2022), 2nd International Workshop on Artificial Intelligence methods for Smart Cities (AISC-2022), Leuven, Belgium.
- 2022 R. Saia, S. Carta, G. Fenu, L. Pompianu. "Brain Waves and Evoked Potentials as Biometric User Identification Strategy: an Affordable Low-Cost Approach". In proceedings of the 19th International Conference on Security and Cryptography (SECRYPT-2022), Lisbon, Portugal.
- 2022 R. Saia, S. Carta, G. Fenu, L. Pompianu. "A Region-based Training Data Segmentation Strategy to Credit Scoring". In proceedings of the 19th International Conference on Security and Cryptography (SECRYPT-2022), Lisbon, Portugal.
- 2021 R. Saia, S. Podda, L. Pompianu, D.R. Recupero, G. Fenu. "A Blockchain-based Distributed Paradigm to Secure Localization Services". Accepted for publication in *Sensors*, MDPI.
- 2021 R. Saia, S. Carta, O. Bergmann. "Wireless Internet, Multimedia, and Artificial Intelligence: New Applications and Infrastructures". Accepted for publication in *Future Internet (FI)*, MDPI.
- 2021 R. Saia, S. Podda, G. Fenu, R. Balia. "Decomposing Training Data to Improve Network Intrusion Detection Performance". In proceedings of the 13th International Joint Conference on Knowledge Discovery, Knowledge Engineering and Knowledge Management (KDIR-2021), Online Streaming due to COVID-19 emergency.
- 2021 R. Saia, A. Giuliani, L. Pompianu, S. Carta. "From Payment Services Directive 2 (PSD2) to Credit Scoring: A Case Study on an Italian Banking Institution". In proceedings of the 13th International Joint Conference on Knowledge Discovery, Knowledge Engineering and Knowledge Management (KDIR-2021), Online Streaming due to COVID-19 emergency.
- 2021 S. Carta, A. Ferreira, D.R. Recupero, R. Saia. "Credit Scoring by Leveraging an Ensemble Stochastic Criterion in a Transformed Feature Space". Accepted for publication in *Progress in Artificial Intelligence*. Springer.
- 2020 S. Carta, G. Fenu, A. Ferreira, D.R. Recupero, R. Saia. "A Two-Step Feature Space Transforming Method to Improve Credit Scoring Performance". Accepted for publication in *International Joint Conference on Knowledge Discovery, Knowledge Engineering, and Knowledge Management* (pp. 134-157). Springer, Cham.
- 2020 S. Carta, S. Podda, D.R. Recupero, R. Saia. "A Local Feature Engineering Strategy to Improve Network Anomaly Detection". Accepted for publication in *Future Internet (FI)*, MDPI.
- 2020 S. Carta, S. Podda, D.R. Recupero, R. Saia, G. Usai. "Popularity Prediction of Instagram Posts". Accepted for publication in *Computation*, MDPI.
- 2020 R. Saia, S. Carta, D. R. Recupero, G. Fenu. "A Feature Space Transformation to Intrusion Detection Systems". In proceedings of the 12th International Joint Conference on Knowledge Discovery, Knowledge Engineering and Knowledge Management (KDIR-2020), Online Streaming due to COVID-19 emergency.
- 2020 R. Longo, S. Podda, R. Saia. "Analysis of a Consensus Protocol for Extending Consistent Subchains on the Bitcoin Blockchain". Accepted for publication in *Computation*, MDPI.
- 2020 S. Carta, D.R. Recupero, R. Saia, M. Stanciu. "A General Framework for Risk Controlled Trading Based on Machine Learning and Statistical Arbitrage". In proceedings of the 6th Annual Conference on machine Learning, Optimization and Data science (LOD-2020), Certosa di Pontignano, Siena, Italy.

- 2020 S. Carta, A. Ferreira, D.R. Recupero, M. Saia, R. Saia. "A Combined Entropy-based Approach for a Proactive Credit Scoring". Accepted for publication in *Engineering Applications of Artificial Intelligence (EAAI)*, Elsevier.
- 2020 M. Bartoletti, S. Carta, T. Cimoli, R. Saia. "Dissecting Ponzi schemes on Ethereum: identification, analysis, and impact". Accepted for publication in *Future Generation Computer Systems (FGCS)*, Elsevier.
- 2019 S. Carta, A. Corrigan, A. Ferreira, D.R. Recupero, R. Saia. "A Holistic Auto-Configurable Ensemble Machine Learning Strategy for Financial Trading". Accepted for publication in *Computation*, MDPI.
- 2019 R. Saia, S. Carta, D. R. Recupero, G. Fenu, M. M. Stanciu. "A Discretized Extended Feature Space (DEFS) Model to Improve the Anomaly Detection Performance in Network Intrusion Detection". In proceedings of the 11th International Joint Conference on Knowledge Discovery, Knowledge Engineering and Knowledge Management (KDIR-2019), Vienna, Austria.
- 2019 S. Carta, A. Corrigan, R. Mulas, D. R. Recupero, R. Saia. "A Supervised Multi-class Multi-label Word Embeddings Approach for Toxic Comment Classification". In proceedings of the 11th International Joint Conference on Knowledge Discovery, Knowledge Engineering and Knowledge Management (KDIR-2019), Vienna, Austria.
- 2019 R. Saia, S. Carta, D. R. Recupero, G. Fenu, M. Saia. "A Discretized Enriched Technique to Enhance Machine Learning Performance in Credit Scoring". In proceedings of the 11th International Joint Conference on Knowledge Discovery, Knowledge Engineering and Knowledge Management (KDIR-2019), Vienna, Austria.
- 2019 S. Carta, G. Fenu, D. R. Recupero, R. Saia. Fraud Detection for E-commerce Transactions by Employing a Prudential Multiple Consensus Model. Accepted for publication in *Journal of Information Security and Applications (JISA)*, Elsevier, 2019.
- 2018 S. Carta, A. Medda, A. Pili, D. R. Recupero, R. Saia. Forecasting E-commerce Products Prices by Combining an Autoregressive Integrated Moving Average (ARIMA) Model and Google Trends Data. Accepted for publication in *Future Internet (FI)*, MDPI.
- 2018 R. Saia, S. Carta, D.R. Recupero, G. Fenu. "Internet of Entities (IoE): a Blockchain-based Distributed Paradigm for Data Exchange Between Wireless-based Devices". In proceedings of the 8th International Conference on Sensor Networks (SENSORNETS-2019), Prague, Czech Republic.
- 2018 R. Saia, S. Carta. "Evaluating the Benefits of Using Proactive Transformed-domain-based Techniques in Fraud Detection Tasks". Accepted for publication in *Future Generation Computer Systems (FGCS)*, Elsevier.
- 2018 R. Saia, S. Carta. "Exploiting Wavelet Analysis in Fraud Detection Process". In proceedings of the Data (R)evolution Conference (GARR-2018), Cagliari, Italy.
- 2018 R. Saia, S. Carta, D.R. Recupero. "A Probabilistic-driven Ensemble Approach to Perform Event Classification in Intrusion Detection System". In proceedings of the 10th International Joint Conference on Knowledge Discovery, Knowledge Engineering and Knowledge Management (KDIR-2018), Seville, Spain.
- 2018 R. Saia, L. Piras, S. Carta. "Recommending Friends by Identifying Latent Similarities in Social Environments". In proceedings of the 40th European Conference on Information Retrieval (ECIR-2018), Social Aspects in Personalization and Search (SoAPS-2018) Workshop, Grenoble, France.
- 2018 R. Saia, S. Carta, G. Fenu. "A Wavelet-based Data Analysis to Credit Scoring". In proceedings of the 2nd International Conference on Digital Signal Processing (ICDSP-2018), Tokyo, Japan.
- 2018 R. Saia, S. Carta. "Proactivity or Retroactivity? Evaluating the Benefits of Using Proactive Transformed-domain-based Techniques in Fraud Detection Tasks". In proceedings of the High Quality Journal Forum - 3rd International Conference on Internet of Things, Big Data and Security (IoTBDS-2018), Funchal, Madeira, Portugal.

- 2018 R. Saia. “Unbalanced Data Classification in Fraud Detection by Introducing a Multidimensional Space Analysis”. In proceedings of the 3rd International Conference on Internet of Things, Big Data and Security (IoTBDS-2018), Funchal, Madeira, Portugal.
- 2017 M. Bartoletti, S. Carta, T. Cimoli, R. Saia. “Dissecting Ponzi schemes on Ethereum: identification, analysis, and impact”. In proceedings of the P2P Financial Systems International Workshop (P2PFISY-2017), London, United Kingdom.
- 2017 R. Saia. “A Discrete Wavelet Transform Approach to Fraud Detection”. In proceedings of the 11th International Conference on Network and System Security (NSS-2017), International Workshop on Security Measurements of Cyber Networks (SMCN-2017), Helsinki, Finland.
- 2017 R. Saia, S. Carta. “Evaluating Credit Card Transactions in the Frequency Domain for a Proactive Fraud Detection Approach”. In proceedings of the 14th International Conference on Security and Cryptography (SECRYPT-2017), Madrid, Spain.
- 2017 R. Saia, S. Carta. “A Fourier Spectral Pattern Analysis to Design Credit Scoring Models”. In proceedings of the International Conference on Internet of Things and Machine Learning (IML-2017), Liverpool city, United Kingdom.
- 2017 R. Saia, S. Carta. “A Frequency-domain-based Pattern Mining for Credit Card Fraud Detection”. In proceedings of the 2nd International Conference on Internet of Things, Big Data and Security (IoTBDS-2017), Porto, Portugal.
- 2016 R. Saia, S. Carta. “Introducing a Vector Space Model to Perform a Proactive Credit Scoring”. Accepted for publication in “Lecture Notes in Communications in Computer and Information Science” (CCIS), Springer.
- 2016 R. Saia, L. Boratto, S. Carta. “Semantics-Aware Content-Based Recommender Systems: Design and Architecture Guidelines”. Accepted for publication in Neurocomputing (NEUCOM), Elsevier.
- 2016 R. Saia, S. Carta. “An Entropy Based Algorithm for Credit Scoring”. Accepted for publication in Lecture Notes in Business Information Processing (LNBIP) Series, Springer.
- 2016 R. Saia, S. Carta. “A Linear-dependence-based Approach to Design Proactive Credit Scoring Models”. In proceedings of the 8th International Conference on Knowledge Discovery and Information Retrieval (KDIR-2016), Porto, Portugal.
- 2016 R. Saia, L. Boratto, S. Carta, G. Fenu. “Exploiting a Determinant-based Metric to Evaluate a Word-embeddings Matrix of Items”. In proceedings of the IEEE International Conference on Data Mining series (ICDM-2016), SERecSys Workshop, Barcelona, Spain.
- 2016 R. Saia, L. Boratto, S. Carta. “Representing Items as Word-Embedding Vectors and Generating Recommendations by Measuring their Linear Independence”. In proceedings of the ACM Recommender Systems conference (RecSys-2016), Boston, USA.
- 2016 R. Saia, L. Boratto, S. Carta. “Improving the Accuracy of Latent-space-based Recommender Systems by Introducing a Cut-off Criterion”. In proceedings of the Workshop on Engineering Computer-Human Interaction in Recommender Systems (EnCHIREs), Brussels, Belgium.
- 2016 R. Saia, L. Boratto, S. Carta, G. Fenu. “Using Neural Word Embeddings to Model User Behavior and Detect User Segments”. Accepted for publication in Knowledge-Based Systems (KBS), Elsevier.
- 2016 R. Saia, L. Boratto, S. Carta, G. Fenu. “Binary Sieves: Toward a Semantic Approach to User Segmentation for Behavioral Targeting”. Accepted for publication in Future Generation Computer Systems (FGCS), Elsevier.
- 2016 R. Saia, L. Boratto, S. Carta, G. Fenu. “A semantic approach to remove incoherent items from a user profile and improve the accuracy of a recommender system”. Accepted for publication in Journal of Intelligent Information Systems (JIIS), Springer.
- 2015 R. Saia, L. Boratto, S. Carta. “A Class-based Strategy to User Behavior Modeling”. Accepted for publication in Studies in Computational Intelligence (SCI), Springer.

- 2015 R. Saia, L. Boratto, S. Carta. "A Proactive Time-frame Convolution Vector (TFCV) Technique to Detect Frauds Attempts in E-commerce Transactions". International Conference on Communication and Information Processing (ICCIIP-2015), Tokyo, Japan. Accepted for publication in International Journal of e-Education, e-Business, e-Management and e-Learning (IJEEEE).
- 2015 R. Saia, L. Boratto, S. Carta. "Introducing a Weighted Ontology to Improve the Graph-based Semantic Similarity Measures". 6th International Conference on Networking and Information Technology (ICNIT-2015), Tokyo, Japan. Accepted for publication in International Journal of Signal Processing Systems (IJSPS).
- 2015 R. Saia, L. Boratto, S. Carta. "Multiple Behavioral Models: a Divide and Conquer Strategy to Fraud Detection in Financial Data Streams". In proceedings of the 7th International Conference on Knowledge Discovery and Information Retrieval (KDIR-2015), Lisbon, Portugal.
- 2015 R. Saia, L. Boratto, S. Carta. "Popularity Does Not Always Mean Triviality: Introduction of Popularity Criteria to Improve the Accuracy of a Recommender System". International Conference on Computer Science and Information Technology (ICCSIT-2015), Amsterdam, Netherlands. Accepted for publication in Journal of Computers (JCP).
- 2015 R. Saia, L. Boratto, S. Carta. "Exploiting the Evaluation Frequency of the Items to Enhance the Recommendation Accuracy". In proceedings of the International Conference on Computer Applications & Technology (ICCAT-2015), Rome, Italy.
- 2015 R. Saia, L. Boratto, S. Carta. "A Latent Semantic Pattern Recognition Strategy for an Untrivial Targeted Advertising". In Proceedings of the 4th IEEE International Congress (BigData-2015), New York, United States of America.
- 2014 R. Saia, L. Boratto, S. Carta. "A New Perspective on Recommender Systems: a Class Path Information Model". In Proceedings of the Science and Information Conference (SAI-2015), London, United Kingdom.
- 2014 R. Saia, L. Boratto, S. Carta. "Semantic Coherence-based User Profile Modeling in the Recommender Systems Context". In Proceedings of the 6th International Conference on Knowledge Discovery and Information Retrieval (KDIR-2014), Rome, Italy.

Books

- 2016 R. Saia. "Similarity and Diversity: Two Sides of the Same Coin in Data Analysis". LAMBERT Academic Publishing, ISBN 3659883158.
- 2010 R. Saia. "Programmazione e controllo dei sistemi informatici". FAG publisher, Milan - Italy, ISBN 9788882338633.
- 2009 R. Saia. "Sicurezza wireless e mobile". FAG publisher, Milan - Italy, ISBN 9788882337742.
- 2008 R. Saia. "Reti e sicurezza per sistemi Windows e Linux/Unix". FAG publisher, Milan - Italy, ISBN 9788882336912.

Articles

- 2012 R. Saia. "Hping il coltellino svizzero della sicurezza". "Linux Pro" journal, Italy
- 2012 R. Saia. "Mettila al sicuro la tua LAN". "Win Magazine" journal, Italy
- 2012 R. Saia. "Tecniche di mappatura delle reti wireless". "Linux Pro" journal, Italy
- 2012 R. Saia. "Deceiving Networks Defenses with Nmap Camouflaged Scanning". "Hakin9 Exploiting Software" journal, Warsaw - Poland
- 2012 R. Saia. "Creating a Fake Wi-Fi Hotspot to Capture Connected Users Information". "Hakin9 Exploiting Software" journal, Warsaw - Poland
- 2012 R. Saia. "Proactive Network Defence through Simulated Network". "Hakin9" journal, Warsaw - Poland
- 2012 R. Saia. "From the Theory of Prime Numbers to Quantum Cryptography". "Hakin9" journal, Warsaw - Poland
- 2011 R. Saia. "Rsyslog: funzioni avanzate e grande affidabilità". "Linux&C" journal, Italy
- 2011 R. Saia. "La rete è sotto controllo - Regolamentazione e filtraggio dei contenuti". "Linux Pro" journal, Italy

Research Assignments

- 2022–2023 Responsibility for the study entitled “Studio per lo sviluppo algoritmi di intelligenza artificiale in ambito IoT/Blockchain per applicazioni Green”, project “Convenzione DOMO-DMI – Progetto di ricerca dell’Università di Cagliari”, at Department of Mathematics and Computer Science, University of Cagliari, Italy.
- 2022–2022 Responsibility for the study entitled “Studio per l’adeguamento di aree portale relativamente ai tematismi propri del progetto, con analisi e definizione di ipotesi di gerarchizzazione degli argomenti, articolazione dell’orientamento nella navigazione, scenari di semplificazione delle voci di menu, user experience calibrata sull’accesso per target differenti”, project “Studio per l’adeguamento di aree portale per tematismo”, at Department of Mathematics and Computer Science, University of Cagliari, Italy.
- 2021–2021 Responsibility for the study entitled “Sviluppo di tecnologie e algoritmi per il credit scoring. L’attività prevede la concezione, implementazione e sperimentazione di algoritmi per la stima di indicatori del merito creditizio di clienti di istituti bancari a partire dai dati pregressi dell’utente stesso. È prevista la creazione e sperimentazione di modelli predittivi allenati sulla base di su serie storiche delle attività degli altri utenti di istituti di credito attraverso algoritmi di Shallow Machine Learning o Deep Learning”, project “INTELLICREDIT”, at Department of Mathematics and Computer Science, University of Cagliari, Italy.
- 2020–2020 Responsibility for the study entitled “Sviluppo e sperimentazione del prototipo di un sistema software basato su algoritmi e interfacce intelligenti per monitorare l’operato dei trainer e il livello di soddisfazione dei clienti al fine di intervenire quando necessario per migliorare la qualità del servizio offerto in ambito di piattaforme di e-coaching per il running”, project “AI4FIT Artificial Intelligence & Human Computer Interaction per l’e-coaching”, at Department of Mathematics and Computer Science, University of Cagliari, Italy.
- 2019–2019 Responsibility for the study entitled “Studio, sviluppo e sperimentazione di algoritmi di intelligenza artificiale e recommendation per l’utilizzo nell’ambito di piattaforme industriali”, project “AI4FIT Artificial Intelligence & Human Computer Interaction per l’e-coaching”, at Department of Mathematics and Computer Science, University of Cagliari, Italy.
- 2017–2017 Responsibility for the study entitled “Studio, implementazione e sperimentazione di algoritmi di recommendation per applicazioni di credit scoring e fraud detection per l’utilizzo nell’ambito di piattaforme industriali per la realizzazione di applicazioni software mobile e non”, project “NOMAD: Next-generation Open Mobile Apps Development”, at Department of Mathematics and Computer Science University of Cagliari, Italy.

Research Grants

- 2020–2021 Winner of a postdoctoral research grant on “Design, development and experimentation of credit scoring algorithms for the Intellicredit project”, at Department of Mathematics and Computer Science, University of Cagliari, Italy.
- 2018–2020 Winner of a postdoctoral research grant on “Study, development and experimentation of machine learning algorithms for analysis and security of data”, at Department of Mathematics and Computer Science, University of Cagliari, Italy.
- 2017–2018 Winner of a postgraduate research grant on “Study, development and experimentation of models and algorithms for data analysis in user profiling and information security for integration into RAD (Rapid Application Development)”, at Department of Mathematics and Computer Science, University of Cagliari, Italy.
- 2016–2017 Winner of a postgraduate research grant on “Study, research, and development of recommendation and security technologies and algorithms”, at Department of Mathematics and Computer Science, University of Cagliari, Italy.

Research Projects

- 2018–now Member of the “Artificial Intelligence and Big Data Laboratory” at University of Cagliari, Department of Mathematics and Computer Science, Italy.

- 2013–now Member of the Blockchain@Unica Research Lab at University of Cagliari, Department of Mathematics and Computer Science, Italy.
- 2015–2017 Member of the Trustworthy “Computational Societies”, in the context of the “NOMAD” (Next-generation Open Mobile Apps Development) project.
- 2013–2015 Member of the Trustworthy “Computational Societies”, in the context of the “Social Glue” (A Modular Development Platform for Community-oriented Services) project.

Teaching and Tutoring

Teaching

- 2022–2023 Teaching on “Embedded Systems for the Internet of Things” (Master’s Degree in Computer Science at Department of Mathematics and Computer Science, University of Cagliari, Italy).
- 2021–2022 Teaching on “Embedded Systems for the Internet of Things” (Master’s Degree in Computer Science at Department of Mathematics and Computer Science, University of Cagliari, Italy).
- 2021–2022 Teaching on “IoT Application, Components, and Network” at Samsung Innovation Campus - Smart Things Edition, University of Cagliari, Italy).
- 2020–2021 Teaching on “Embedded Systems for the Internet of Things” (Master’s Degree in Computer Science at Department of Mathematics and Computer Science, University of Cagliari, Italy).
- 2020–2020 Teaching on “Prediction Models in Financial Domain”, as part of the “New Technologies for the Future Public Administration” course, instituted by the Department of Economic and Business, University of Cagliari.
- 2018–2018 Teacher of the forum “Proactivity or Retroactivity? Evaluating the Benefits of Using Proactive Transformed-domain-based Techniques in Fraud Detection Tasks” at the 3rd International Conference on Internet of Things, Big Data and Security (IoTBDS-2018), Funchal, Madeira, Portugal.
- 2017–2017 Teaching on “Fundamentals of Computer Architecture, Operating Systems and System Administration”, as part of the “Technician for Web/Mobile Applications and Internet of Things Programming” course, instituted by the University of Cagliari.
- 2016–2016 Teaching on “Fundamentals of Computer Architecture, Operating Systems and System Administration”, as part of the “Advanced Course in Web and Mobile Applications and Internet of Things” (WMA-IoT), instituted by the University of Cagliari, in collaboration with “Sardegna Ricerche” and the “Center for Advanced Studies, Research and Development in Sardinia” (CRS4).

Tutoring

- 2021–2022 Tutoring on “Operating Systems I” (Bachelor’s Degree in Computer Science at Department of Mathematics and Computer Science, University of Cagliari, Italy).
- 2015–2015 Tutoring on “Embedded Systems for the Internet of Things” 1st Level Master at Department of Electrical and Electronic Engineering (DIEE) of the University of Cagliari.
- 2017–2018 Tutoring on “Operating Systems I” (Bachelor’s Degree in Computer Science at Department of Mathematics and Computer Science, University of Cagliari, Italy).
- 2016–2017 Tutoring on “Operating Systems I” (Bachelor’s Degree in Computer Science at Department of Mathematics and Computer Science, University of Cagliari, Italy).
- 2001–2004 Teaching activity related to several Information Technology topics, such as “IT Fundamental Theory”, “Data Security”, “Networking”, “Internet”, “Office Automation”, “Microsoft Word”, “Microsoft Excel Basic and Advanced Level” (commissioned by the Ministry of Defense, Italy).

Ad Hoc Reviewer

- **ACM:** Journal of Data and Information Quality; Transactions on Knowledge Discovery from Data; Transactions on Privacy and Security.

- **Elsevier:** Applied Computing and Informatics; Applied Soft Computing; Artificial Intelligence in Medicine; Array; Computer and Information Sciences; Computers and Operations Research; Computer Science Review; Computers & Security; Data in Brief; Decision Support Systems; Electronic Commerce Research and Applications; Expert Systems With Applications; Future Generation Computer Systems; Heliyon; Information Sciences; International Journal of Human-Computer Studies; International Journal of Medical Informatics; Journal of Information Security and Applications; Journal of King Saud University; Omega; Systems and Soft Computing; Technological Forecasting & Social Change; Technology in Society.
- **Emerald:** Applied Computing and Informatics; Business Process Management Journal; Journal of Applied Accounting Research.
- **Hindawi:** Complexity; Computational and Mathematical Methods in Medicine; Computational Intelligence and Neuroscience; Discrete Dynamics in Nature and Society; International Journal of Intelligent Systems; Journal of Electrical and Computer Engineering; Journal of Function Spaces; Mathematical Problems in Engineering; Mobile Information Systems; Scientific Programming; Wireless Communications and Mobile Computing.
- **IEEE:** Access; Big Data Mining and Analytics; Computer; Intelligent Systems; Journal on Selected Areas in Communications; Network Magazine; Open Journal of the Computer Society; Security and Privacy; Transactions on Big Data; Transactions on Cybernetics; Transactions on Knowledge and Data Engineering; Transactions on Information Forensics & Security; Transactions on Systems, Man and Cybernetics; Transactions on Circuits and Systems for Video Technology; Transactions on Computational Social Systems; Transactions on Dependable and Secure Computing; Transactions on Engineering Management; Transactions on Services Computing; Wireless Communications Magazine.
- **Inderscience:** International Journal of Business Intelligence and Data Mining; International Journal of Electronic Marketing and Retailing.
- **IOS Press:** Risk and Decision Analysis.
- **Mary Ann Liebert:** Cyberpsychology, Behavior, and Social Networking.
- **MDPI:** Algorithms; Applied Sciences; Axioms; Biomedicines; Electronics; Entropy; Future Internet; Healthcare; Informatics; Journal of Theoretical and Applied Electronic Commerce Research; Mathematics; Network; Risks; Sensors; Sustainability.
- **MIT Press Direct:** Data Intelligence.
- **OXFORD University Press:** Journal of the Royal Statistical Society: Series A.
- **PeerJ:** Computer Science.
- **Polish Academy of Sciences:** Control and Cybernetics.
- **Public Library of Science:** PLoS ONE.
- **SAGE Publishing:** SAGE Open.
- **Springer:** Financial Innovation; Information Systems Frontiers; The Journal of Supercomputing; Neural Computing and Applications.
- **Taylor and Francis:** Applied Artificial Intelligence; Connection Science; Cybernetics and Systems; International Journal of Management Science and Engineering Management; Institution of Electronics and Telecommunication Engineers Technical Review; Journal of Control and Decision; Journal of Experimental & Theoretical Artificial Intelligence; Journal of the Operational Research Society.
- **Wiley:** Expert Systems; IET Cyber-Physical Systems: Theory & Applications; IET Information Security; Intelligent Systems in Accounting, International Journal of Intelligent Systems, Finance and Management; International Transactions in Operational Research; Journal of Forecasting; Concurrency and Computation - Practice and Experience.

Committee Service

2024 Session chair at “8th International Conference on Computer-Human Interaction Research and Applications, Porto, Portugal” (CHIRA-2024).

- 2024 Member of the Graduation Commission for the Master’s Degrees in Computer Science at Department of Mathematics and Computer Science, University of Cagliari, Italy.
- 2024 Member of the Graduation Commission and Co-examiner for the Master’s Degrees in Computer Science at Department of Mathematics and Computer Science, University of Cagliari, Italy.
- 2024 Member of the program committee and Session Chair at “32nd ACM Conference on User Modeling, Adaptation and Personalization, Cagliari, Italy” (UMAP-2024).
- 2024 Member of the technical committee at “17th International Conference on Computer Science and Information Technology, Dubai, UAE” (ICCSIT-2024).
- 2023 Session chair at “Intelligent Systems Conference, Amsterdam, The Netherlands” (INTELLISYS-2023).
- 2023 Member of the program committee at “17th ACM Recommender Systems Conference, Late Breaking Results track (LBR), Singapore” (RECSYS-2023).
- 2023 Member of the technical committee at “16th International Conference on Computer Science and Information Technology, Paris, France” (ICCSIT-2023).
- 2023 Member of the program committee at “3rd International Workshop on Artificial Intelligence methods for Smart Cities, online mode” (AISC-2023).
- 2022 Session chair at “19th International Conference on Security and Cryptography, Lisbon, Portugal” (SECRYPT-2022).
- 2022 Member of the program committee at “Second International Workshop on Artificial Intelligence methods for Smart Cities, Leuven, Belgium” (AISC-2022).
- 2022 Member of the Graduation Commission for the Bachelor’s and Master’s Degrees in Computer Science at Department of Mathematics and Computer Science, University of Cagliari, Italy.
- 2022 Member of the review committee at “Annual Meeting of the Southeastern Decision Science Institute, Jacksonville, Florida, USA” (SEDSI-2022).
- 2021 Member of the program committee at “15h ACM Recommender Systems Conference, Demo track, Amsterdam, Netherlands” (RECSYS-2021).
- 2021 Member of the program committee at “First International Workshop on Artificial Intelligence methods for Smart Cities” (AISC-2021).
- 2021 Member of the program committee at “17th International Conference on Web Information Systems and Technologies, Valletta , Malta” (WEBIST-2021).
- 2021 Member of the program committee at “1st International Workshop on Anomalies Detection and Road Traffic Analysis in Smart Cities: methods, applications cloud-based technologies, online due to COVID-19 emergency” (I-WANDER 2021).
- 2021 Member of the review committee at “Annual Meeting of the Southeastern Decision Science Institute, Jacksonville, Florida, USA” (SEDSI-2021).
- 2020 Session chair at “12th International Conference on Knowledge Discovery and Information Retrieval, online due to COVID-19 emergency” (KDIR-2020).
- 2020 Member of the program committee at “9th International Workshop on Machine Learning, Pattern Recognition & Applications, online due to COVID-19 emergency” (MLPRA-2020).
- 2020 Member of the program committee at “14th ACM Recommender Systems Conference, Demo and Late-Breaking Results track, online due to COVID-19 emergency” (RECSYS-2020).
- 2020 Member of the program committee at “16th International Conference on Web Information Systems and Technologies, Budapest , Hungary” (WEBIST-2020).
- 2019 Session chair at “11th International Conference on Knowledge Discovery and Information Retrieval, Vienna, Austria” (KDIR-2019).
- 2019 Member of the program committee at “15th International Conference on Web Information Systems and Technologies, Vienna , Austria” (WEBIST-2019).
- 2018 Session chair at “10th International Conference on Knowledge Discovery and Information Retrieval, Seville, Spain” (KDIR-2018).

- 2018 Member of the technical committee at “8th International Workshop on Machine Learning, Pattern Recognition & Applications, Orleans, France” (MLPRA-2018).
- 2017 Session chair at “11th International Conference on Network and System Security, Helsinki, Finland” (NSS-2017).
- 2017 Session chair at “14th International Conference on Security and Cryptography, Madrid, Spain” (SECURITY-2017).
- 2017 Member of the technical committee at “EnCHIReS: 2nd Workshop on Engineering Computer-Human Interaction in Recommender Systems, Lisbon, Portugal” (EnCHIReS-2017).
- 2017 Member of the technical committee at “HUSO: Third International Conference on Human and Social Analytics, Nice, France” (HUSO-2017).
- 2016 Session chair at “8th International Conference on Knowledge Discovery and Information Retrieval, Porto, Portugal” (KDIR-2016).
- 2016 Member of the technical committee at “SERecSys: Workshop on Semantics-Enabled Recommender Systems, IEEE International Conference on Data Mining, Barcelona, Spain” (ICDM-2016).
- 2015 Member of the technical committee at “4th IEEE International Congress, New York, USA” (BigData-2015).
- 2014 Session chair at “6th International Conference on Knowledge Discovery and Information Retrieval, Rome, Italy” (KDIR-2014).

Editorial Activity and Memberships

- 2024–now Guest Editor of the Topical Collection “Smart Cities Reinvented: AI-Powered Infrastructure Optimization” of the Discover Artificial Intelligence Journal, Springer Nature.
- 2021–now Member of the Reviewer Board for the Journal of Sensor and Actuator Networks of the Multidisciplinary Digital Publishing Institute (MDPI).
- 2021–2022 Guest Editor of the Special Issue “Internet of Things, Artificial Intelligence, and Blockchain Infrastructure: Applications, Security, and Perspectives” of the Applied Sciences Journal, Multidisciplinary Digital Publishing Institute (MDPI).
- 2020–2021 Guest Editor of the Special Issue “Wireless Internet, Multimedia, and Artificial Intelligence: New Applications and Infrastructures” of the Future Internet Journal, Multidisciplinary Digital Publishing Institute (MDPI).
- 2020–now Member of the Reviewer Board for the Future Internet Journal of the Multidisciplinary Digital Publishing Institute (MDPI).
- 2019–now Member of the “European Science Foundation” (ESF) College of Expert Reviewers.

Awards/Honors

- 2024 Highly Commented Paper Award, “Enhancing IDS with Ensemble LSTM Networks Using Real and GAN Data”, 34th IEEE International Telecommunication Networks and Applications Conference (ITNAC).
- 2024 Best Poster Honorable Mention, “EEG Biometrics with GAN Integration for Secure Smart City Data Access”, 8th International Conference on Computer-Human Interaction Research and Applications (CHIRA).
- 2023 Included in the 2023 ranking of the top 2% of the world’s best scientists compiled by Stanford University.
- 2022 Outstanding Reviewer Award, “Algorithms journal”, Multidisciplinary Digital Publishing Institute (MDPI).
- 2021 Outstanding Reviewer Award, “Future Internet journal”, Multidisciplinary Digital Publishing Institute (MDPI).

- 2019 Best paper award, “A Discretized Enriched Technique to Enhance Machine Learning Performance in Credit Scoring”, 11th International Joint Conference on Knowledge Discovery, Knowledge Engineering and Knowledge Management (KDIR).
- 2015 Best paper award, “Exploiting the Evaluation Frequency of the Items to Enhance the Recommendation Accuracy”, International Conference on Computer Applications & Technology (ICCAT).

Professional Experiences

- 2024–2025 Principal Investigator of the Research Grant “Analysis and Research of Approaches for Monitoring Dangerous Behaviors and Detecting Urban Phenomena and Anomalies”, at Department of Mathematics and Computer Science, University of Cagliari, Italy.
- 2024–2025 Principal Investigator of the Research Grant “Research of Intelligent Methods, Algorithms, and Metrics for Service Monitoring in the Context of Social Systems”, at Department of Mathematics and Computer Science, University of Cagliari, Italy.
- 2024–2025 Principal Investigator of the Research Grant “Study and Research of Optimization Algorithms and Techniques for the Creation and Customization of Services and Applications for Social Systems”, at Department of Mathematics and Computer Science, University of Cagliari, Italy.
- 2023–now Researcher Position RDTA, 01/B1, SSD INF/01 at University of Cagliari, Department of Mathematics and Computer Science, Italy.
- 2020–2023 Assistant Professor (Cultore della Materia) at Department of Mathematics and Computer Science, University of Cagliari, Italy.
- 2013–2023 Doctoral/Postdoctoral Researcher at Department of Mathematics and Computer Science of Cagliari University, Italy.
- 2013–2013 I worked from January 2013 to July 2013 for the “North Atlantic Treaty Organization” (NATO) in the Balkan area. My tasks were to ensure the confidentiality, integrity and availability of the electronic information related with a defined area, as well as the administration of many network services based on several Oracle RDBMS servers.
- 1998–2012 Still working in the “Italian Army”, at the end of the nineties I started to operate in the field of Network Administration and Security, with the task to administer a big network based on servers and clients of the Windows and Linux families. My main duty was to ensure reliable network services, maintain the network security and provide a quick response in the emergency cases.
- 1983–1997 I began my career in the “Italian Army”, where I worked as a “Electronic Technician” in the branch of the optoelectronic. My duties were to verify, maintain and repair several kinds of optoelectronic devices.

Professional Development

- 2023 Digital Science and Education for Teaching Innovative Assessment (DISCENTIA), Initial Training Path in the Educational Field-AQ, University of Cagliari, Italy
- 2018 2nd International Summer School on Deep Learning, Genova, Italy
- 2016 International One-day of Study on Bitcoin and Blockchain Technologies, University of Stirling, Scotland, United Kingdom
- 2015 International Winter School on Big Data, Tarragona, Spain
- 2014 International Summer School on Trends in Computing, Tarragona, Spain

Various skills

Computer Forensics

In several occasions I worked as a “Computer Forensic Consultant” in criminal trials, where I operated to retrieve, analyze and present, the electronic evidence. During this activities I learn many state-of-the-art techniques and tools used in this particular field in order to recover, safeguard, analyze, and present the data extracted from various computer storage devices.

Programming

C, C++, Java, Python, Android, HTML, SQL, Bash, R, Matlab and L^AT_EX.

Operating Systems

Fluent in Microsoft Windows family and Linux distros.

Hardware

Good knowledge of Intel based hardware architectures and numerous categories of network devices, such as routers, switches, and firewalls.

Applications and Presentations

Excellent knowledge of the main software applications under Windows and Linux operating systems, including those for the office automation, the photo editing, and the Integrated Development Environments (IDE).

High standard of verbal communication, technical writing, and presenting by using WYSIWYM (L^AT_EX) or WYSIWIS (Microsoft Powerpoint and LibreOffice Impress) applications.

Languages

Italian	Native proficiency
Spanish	Elementary proficiency
English	Professional working proficiency

Affiliations

2020 ACM, Association for Computing Machinery, Lifetime Professional Membership.

Identifiers and Contacts

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Scholar	https://scholar.google.it/citations?user=PMn55hgAAAAJ&hl
ResearchGate	https://www.researchgate.net/profile/Roberto_Saia
LinkedIn	https://www.linkedin.com/in/robertosaia
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Resume revisions

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