

Sara Migliorini

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Education

Ph.D. in Computer Science

UNIVERSITY OF VERONA

- Supervisor: Prof. Alberto Belussi
- Reviewers: Prof. Manfred Reichert, Prof. Peter van Oosterom, Prof. Eliseo Clementini
- Title: *Supporting Distributed Geo-Processing: A Framework for Managing Multi-Accuracy Spatial Data*

Verona, Italy

May 2012

M.Sc. in Computer Science

UNIVERSITY OF VERONA

- Supervisor: Prof. Alberto Belussi
- Title: *Aggiornamento statistico di una base di dati geografica in presenza di vincoli topologici*
- Grade: 110/110 cum laude

Verona, Italy

Dec 2007

B.Sc. in Computer Science

UNIVERSITY OF VERONA

- Supervisors: Prof. Alberto Belussi and Prof. Carlo Combi
- Co-supervisor: dr Barbara Oliboni
- Title: *GeoMTGM – Un modello dei dati semistrutturati per la gestione di informazioni geografiche, multimediali e temporali*
- Grade: 109/110

Verona, Italy

Dec 2004

National Scientific Qualification

In November 2020, she obtained the Italian National Scientific Qualification for the role of **Associate Professor** for Competition Sector **09/H1 - Information Processing Systems** (now named **09/IINF-05**), issued under call D.D. 2175/2018. Valid from 13/11/2020 to 13/11/2031.

In July 2023, she obtained the Italian National Scientific Qualification for the role of **Associate Professor** for Competition Sector **01/B1 - Computer Science**, issued under call D.D. 553/2021. Valid from 21/07/2023 to 21/07/2035.

Research Activity

SUMMARY

- From March 2026, she is an Associate Professor at the Department of Computer Science, University of Verona, scientific disciplinary sector IINF-05/A - Information Processing Systems.
- From March 2023 to February 2026, she was a Tenure-track Assistant Professor (RTD-B) at the Department of Computer Science, University of Verona, scientific disciplinary sector ING-INF/05 - Information Processing Systems (now IINF-05/A).
- From December 2019 to November 2022, she was an Assistant Professor (RTD-A) at the Department of Computer Science, University of Verona, scientific disciplinary sector ING-INF/05 - Information Processing Systems (now IINF-05/A).
- From March 2012 to August 2019, she won six one-year postdoctoral research-fellowship competitions under Art. 22 of Law 240/2010, three post-graduate research-fellowship competitions, and held self-employment contracts for specific activities within research programs. These fellowships and contracts were commissioned by the University of Verona. She worked mainly at or in collaboration with the Department of Computer Science, within the Database and Information Systems research group.
- From January 2009 to December 2011, she attended the Ph.D. program in Computer Science at the University of Verona.
- In April 2008, she won a research fellowship at Politecnico di Milano and carried out research for about six months in the area of spatio-temporal databases.
- From January 2008, for about six months, she collaborated with the University of Verona and the Integrated University Hospital of Verona on projects supporting scientific research in computer science and healthcare.

DETAILS

Associate Professor

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Academic discipline: IINF-05/A - Information Processing Systems.

Verona, Italy

Mar 2026 - present

Tenure-track Assistant Professor (RTD-B)

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Academic discipline: ING-INF/05 - Information Processing Systems (ora IINF-05/A).

Verona, Italy

Mar 2023 - Feb 2026

Assistant Professor (RTD-A)

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Academic discipline: ING-INF/05 - Information Processing Systems (ora IINF-05/A).

Verona, Italy

Dec 2019 - Nov 2022

Research grant

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Title: *Creation of an online Geographic Information System to store and manage data relating to the archaeological context of Rubiera.*

Verona, Italy

Sep 2019 - Oct 2019

Research grant

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Title: *Analysis and development of a database for managing production processes in the catering sector.*

Verona, Italy

Jun 2019 - Sep 2019

Research grant

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Title: *Big data recommendation systems: the role of space and time dimensions in recommendation for groups.*

Verona, Italy

Apr 2019 - Jun 2019

Research grant

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Title: *Analisi e studio di fattibilità per la trasformazione della specifica dei dati del progetto nazionale SINFI nell'equivalente specifica europea INSPIRE utilizzando il prototipo IDM Tools.*

Verona, Italy

Oct 2018 - Dec 2018

Research grant

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Title: *Managing spatio-temporal information in big data systems.*

Verona, Italy

May 2018 - Jul 2018

Postdoctoral Research Fellowship (art. 22 Legge 240/2010)

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Title: *Study and design of mapping and data-analysis systems in CDNs.*

Verona, Italy

May 2017 - Apr 2018

Postdoctoral Research Fellowship (art. 22 Legge 240/2010)

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Title: *Specifiche concettuali di basi di dati geografiche per l'interoperabilità: progettazione di strumenti guidati dallo schema concettuale per la visualizzazione, la validazione, l'analisi e gestione di dati geografici distribuiti.*

Verona, Italy

May 2016 - Apr 2017

Postdoctoral Research Fellowship (art. 22 Legge 240/2010)

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA – JOIN PROJECT 2014, “UGENE”

Title: *Development of techniques for automatic code generation supporting the development of data-centric web applications.*

Verona, Italy

May 2015 - Apr 2016

Research grant

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA, MUNICIPALITY OF VERONA – CULTURE AND

TOURISM DEPARTMENT

Title: *Development of WFS web services for managing spatio-temporal information.*

Verona, Italy

Jan 2015 - Mar 2015

Postdoctoral Research Fellowship (art. 22 Legge 240/2010)

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Title: *Modellazione e gestione di dati spazio-temporali in ambiente eterogeneo e distribuito con sperimentazione nell'ambito della ricerca archeologica sul patrimonio storico della città di Verona.*

Verona, Italy

Apr 2014 - Mar 2015

Postdoctoral Research Fellowship (art. 22 Legge 240/2010)

DEPARTMENT OF MEDICINE AND PUBLIC HEALTH – UNIVERSITY OF VERONA

Title: *Web-based collection and analysis of adverse drug reaction data.*

Verona, Italy

Mar 2013 - Feb 2014

Research grant

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Title: *Design and development of a prototype for managing archaeological data for the city of Verona.*

Verona, Italy

Nov 2012 - Jan 2013

Postdoctoral Research Fellowship (art. 22 Legge 240/2010)

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Title: *Specifica concettuale e validazione di vincoli di integrità spaziale su basi di dati geografiche distribuite in formato vettoriale 3D.*

Verona, Italy

Mar 2012 - Feb 2013

Research Contractor

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Title: *Analisi con strumenti automatici dei vincoli strutturali in una base di dati relazionale e delle relazioni d'uso tra strutture dati e moduli software. Il caso JUST Italy s.r.l.: software QUADRA.*

Verona, Italy

Jan 2012 - Feb 2012

Ph.D. in Computer Science

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Title: *Supporting Distributed Geo-Processing: A Framework for Managing Multi-Accuracy Spatial Data.*

Ph.D. Advisor: prof. Alberto Belussi

Verona, Italy

Jan 2009 - Dec 2011

Post-graduate Research Fellowship

DEPARTMENT OF ELECTRONICS AND INFORMATION (DEI), POLITECNICO DI MILANO

Title: *Definizione di un modello concettuale per la descrizione delle proprietà metrico/topologiche dei dati geografici del database topografico della Regione Lombardia.*

Milano, Italy

May 2008 - Oct 2008

Research Contractor

Verona, Italy

DEPARTMENT OF MEDICINE AND PUBLIC HEALTH – SECTION OF PSYCHOLOGY AND PSYCHIATRIC – UNIVERSITY OF

Mar 2008 - Apr 2008

VERONA

Title: *Rischio ambientale, disuguaglianze socioeconomiche e salute mentale*, in “Promuovere la ricerca scientifica per migliorare la qualità delle cure. Il Centro OMS di Ricerca sulla Salute Mentale, Verona

Research grant

Verona, Italy

VERONA UNIVERSITY HOSPITAL — CLINICAL PSYCHIATRY UNIT — O.M.S. COLLABORATING CENTRE

Jan 2008 - Feb 2008

Title: *Data processing and analysis for research activities*.

Research grant

Verona, Italy

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Jul 2005 - Oct 2005

Title: *Design and implementation of XML-based tools for managing metadata of spatial and temporal semi-structured data*.

Spin-off Establishment

- She is among the founding members of a University of Verona spin-off, established on 3 October 2025 under the name KonTrust SRL. The spin-off primarily develops tracking systems using secure IoT sensors and blockchain technology. Within the spin-off, in addition to serving on the Board of Directors, she is the scientific lead for the blockchain branch.

Patents

- Domanda di brevetto italiano n. 102400024336, depositata il 30/10/2024, dal titolo “Procedimento di attestazione remota per dispositivi IoT, sistema e prodotto informativo corrispondenti”. Rapporto di ricerca completamente favorevole emesso dall’Ufficio Italyn Patents il 02/04/2025.

Training and Research Abroad

Visiting Researcher – Occupational Trainee

Brisbane, Australia

QUEENSLAND UNIVERSITY OF TECHNOLOGY (QUT) – BUSINESS PROCESS MANAGEMENT (BPM) RESEARCH GROUP

Jan 2010 - Jul 2010

Project 1: *Comparative Analysis of Scientific Workflows and Business Workflows*

Project 2: *Automated Error Correction of Business Process Models*

Research Project Leadership

HR Process Automation: Machine Learning and Artificial Intelligence

Verona, Italy

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Jun 2025 - May 2026

- Funding institution: AGSM AIM S.p.A.
- Program: Commissioned research
- Role: Principal Investigator
- <https://www.di.univr.it/?ent=progetto&id=6217>
- Duration: 12 months
- Funded amount: 30,000 euros + VAT

Interconnected Nord-Est Innovation Ecosystem (iNEST)

Verona, Italy

Spoke 7: Smart Agrifood

2022-2025

INNOVATION ECOSYSTEMS UNDER THE NRRP

- Subject area: Digital, Industry, Aerospace
- Implementing organization: University of Padua
- Host: University of Verona (Dept. of Computer Science, Dept. of Biotechnology, and Dept. of Management)
- Research topic of the Department of Computer Science - University of Verona: RT2. Process/product innovation for sustainable agri-food, RT4. Logistics, supply chain and vertical coordination
- Role: Task Leader for the Research Topic 4.2 - Traceability of large amounts of data using blockchain technology combined with data integration and analysis
- Duration: 36 months

Development of software for the configuration of aluminium doors and shutters, with integration into the company management system and B2B model

Verona, Italy

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Dec 2023 - Dec 2025

- Funding institution: Alunova S.r.l.
- Program: Commissioned research
- Role: Principal Investigator
- <https://www.di.univr.it/?ent=progetto&id=5923>
- Duration: 24 months
- Funded amount: 40,000 euros + VAT

Innovative crowdfunding platform supporting cultural and environmental heritage

Verona, Italy

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Sep 2022 - Dec 2023

- Funding institution: ARTI S.r.l.
- Program: Commissioned research
- Role: Principal Investigator
- <https://www.di.univr.it/?ent=progetto&id=5899>
- Duration: 16 months
- Funded amount: 16,000 euros + VAT

Fondo Alto Borago (FAB)

Verona, Italy

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Mar 2022 - Dec 2022

- Funding institution: Il Carpino APS
- Program: Commissioned research
- Role: Principal Investigator together with Prof. Alberto Belussi
- <https://www.di.univr.it/?ent=progetto&id=5809>
- Duration: 10 months
- Funded amount: 7,500 euros

A big data analytical framework for contextual group recommendations

Verona, Italy

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Jan 2020 - Dec 2020

- Awarding of Postdoctoral Research Fellowships funded by FUR 2019 funds
- Role: Principal Investigator
- Duration: 12 months
- Funded amount: 25,000 euros

Semantic conversion of the CISIS national synthesis specification into the EU INSPIRE data specifications

Verona, Italy

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Jan 2020 - Jun 2020

- Funding institution: Department of Electronics, Information and Bioengineering (DEIB), Politecnico di Milano
- Program: Commissioned research
- Role: Principal Investigator
- <https://www.di.univr.it/?ent=progetto&id=5453>
- Duration: 6 months
- Funded amount: 12,500 euros

A Context-Aware Indexing Technique for Big Data Systems

Verona, Italy

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Jan 2020 - Dec 2020

- Young Research Project 2020
- Role: Principal Investigator
- Duration: 12 months
- Funded amount: 2,000 euros

Participation in Research Projects

ValorLegno

Verona, Italy

Veneto wood supply chain: advanced systems for enhancing production value

RIR FORESTAORO VENETO

Oct 2024 - Apr 2026

- Funding institution: Veneto Region
- Principal Investigator: Dr. Daniele Meli
- Role: Active participation in research and coordination of research and development activities
- Project participants: Daniele Meli, Sara Migliorini, Ivan Russo, Ilenia Confente, David D'Acunto
- <https://www.di.univr.it/?ent=progetto&id=6207>
- Duration: 24 months

Interconnected Nord-Est Innovation Ecosystem (iNEST)

Verona, Italy

Young Researchers Project CUP B43C22000450006

INNOVATION ECOSYSTEMS UNDER THE PNRR

2024-2025

- Title: Sustainable Tourism Monitoring and Traceability Enhancement: Big Data Analysis for Destination Marketing
- Subject area: Digital, Industry, Aerospace
- Project leader: Dr. Valentina Mazzoli (Dept. of Management)
- Role: Active participation in research and coordination of software development activities
- Duration: 12 months
- Funded amount: 50,000 euros

SPOT - Social and innovative Platform On cultural Tourism and its potential towards deepening Europeanisation

Verona, Italy

DEPARTMENT OF HUMAN SCIENCES – UNIVERSITY OF VERONA

Jan 2020 - Dec 2022

- Funding institution: European Union
- Program: EUROPA - European Projects
- Project leader: Luca Mori
- Role: Processing of geographic data on cultural and literary places through the creation and publication of open data
- <https://www.dsu.univr.it/?ent=progetto&id=5432>
- Duration: 36 months

Percorsi digitali Veronesi

Verona, Italy

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Apr 2021 - Jul 2022

- Funding institution: Municipality of Verona
- Project leaders: Alberto Belussi, Umberto Castellani, Isabella Mastroeni, Dino Zardi
- Project participants: Alberto Belussi, Umberto Castellani, Isabella Mastroeni, Dino Zardi, Elisa Quintarelli, Sara Migliorini
- Role: Active participation in research and coordination of software development activities
- <https://www.di.univr.it/?ent=progetto&id=5733>
- Duration: 15 months
- Funded amount: 150,000 euros

Automated Reasoning about Time in Medical and Business Applications

Verona, Italy

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Jan 2020 - Dec 2020

- Funding institution: Istituto Nazionale di Alta Matematica Francesco Severi - National Group for Scientific Computing
- Research Project 2020
- Project leader: Roberto Posenato
- Project participants: Carlo Combi, Renato Lo Cigno, Alberto Belussi, Damiano Carra, Rosalba Giugno, Leonardo Maccari, Barbara Oliboni, Vincenzo Bonnici, Sara Migliorini
- Duration: 12 months

Distributed Optimization for Large-scale Statistical Modeling

Verona, Italy

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Jan 2019 - Dec 2019

- Funding institution: Istituto Nazionale di Alta Matematica Francesco Severi - National Group for Scientific Computing
- Research Project 2019
- Project leader: Damiano Carra
- Project participants: Carlo Combi, Alberto Belussi, Barbara Oliboni, Renato Lo Cigno, Leonardo Maccari, Alfredo Pulvirenti, Alfredo Ferro, Sara Migliorini, Salvatore Alaimo
- <https://www.di.univr.it/?ent=progetto&id=5370>
- Duration: 12 months

Advanced solutions for the management and use of data concerning services and tourist attractions in the city of Verona – Phase 2

Verona, Italy

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Jun 2016 - Dec 2016

- Funding institution: Municipality of Verona
- Project leader: Alberto Belussi
- Role: Active participation in research
- <https://www.di.univr.it/?ent=progetto&id=4707>
- Duration: 6 months

ARIADNE Project (FP7 – 2013/2017) – Advanced Research Infrastructure for Archaeological Dataset Networking in Europe

Verona, Italy

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Jan 2016 - Jun 2016

- Title: Mapping activities from the SITAR data model and the NIOBE record structure to the CIDOC-CRM-Archaeo standard of the ARIADNE project, and transformation of data into RDF format.
- Funding institution: Ministry of Cultural Heritage and Activities and Tourism
- Project leader: Alberto Belussi
- Role: Active participation in research
- <https://www.di.univr.it/?ent=progetto&id=4578>
- Duration: 6 months

Analysis and revision of the conceptual data model of the SITAR system for mapping SITAR information content to international standards

Verona, Italy

DEPARTMENT OF COMPUTER SCIENCE AND TESIS DEPARTMENT – UNIVERSITY OF VERONA

Nov 2015 - Jun 2016

- Funding institution: Special Superintendency for the Colosseum, the National Roman Museum and the Archaeological Area of Rome
- Project leader: Alberto Belussi
- Role: Active participation in research
- <https://www.di.univr.it/?ent=progetto&id=4706>
- Duration: 10 months

uGene - Flexible Meta-framework / CMS web application

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA – JOINT PROJECTS 2014

- Funding institution: Urbangap S.r.l.
- Project leader: Alberto Belussi
- Role: Active participation in research
- <https://www.di.univr.it/?ent=progetto&id=4560>
- Duration: 36 months

Verona, Italy

Jan 2015 - Dec 2017

Advanced solutions for the management and use of data concerning services and tourist attractions in the city of Verona

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA – MUNICIPALITY OF VERONA, TOURISM SECTION

- Funding institution: Municipality of Verona
- Project leader: Alberto Belussi
- Role: Active participation in research
- <https://www.di.univr.it/?ent=progetto&id=4455>
- Duration: 6 months

Verona, Italy

Jul 2016 - Jan 2017

Extraction, through static analysis, of the main relationships between source code and databases in management software applications (the JUST case: QUADRA software)

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

- Funding institution: Just Italia S.r.l.
- Project leader: Alberto Belussi
- Role: Active participation in research
- <https://www.di.univr.it/?ent=progetto&id=3176>
- Duration: 7 months

Verona, Italy

Dec 2011 - May 2012

Modeling, management and intelligent analysis of temporal clinical processes.

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

- Funding institution: COFIN - Research Projects of National Interest (PRIN 2009)
- Project leader: Carlo Combi
- Role: Active participation in research
- <https://www.di.univr.it/?ent=progetto&id=3700>
- Duration: 24 months

Verona, Italy

Jun 2011 - May 2013

SITAVR - Archaeological Territorial Information System of Verona

DEPARTMENT OF COMPUTER SCIENCE AND TESIS DEPARTMENT – UNIVERSITY OF VERONA

- Project leader: Alberto Belussi
- Role: Active participation in research
- <https://www.di.univr.it/?ent=progetto&id=4237>
- Duration: 72 months

Verona, Italy

Jan 2010 - Dec 2015

Study of methodologies and development of tools for the creation and management of Geographic Databases (geotopographic databases) by Italian public authorities

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

- Funding institution: CISIS (Interregional Center for IT, Geographic and Statistical Systems)
- Program: Commissioned research
- Project leader: Alberto Belussi
- Role: Active participation in research
- <https://www.di.univr.it/?ent=progetto&id=3313>
- Duration: 36 months

Verona, Italy

Apr 2009 - Mar 2012

Research Groups

Blockchain

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

- Role: Coordinator
- <https://www.di.univr.it/?ent=grupporic&id=463>

National

2021-present

Big Data Analytics

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

- Role: Member
- <https://www.di.univr.it/?ent=grupporic&id=462>

National

2021-present

Italian National Group for Scientific Computing (GNCS-INDAM)

NATIONAL GROUP FOR SCIENTIFIC COMPUTING

- Role: Member
- <https://www.altamatematica.it/gncs/>

National

2018-2022

IEEE Member of the Blockchain Technical Community

IEEE – INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS

- Role: Member
- <https://blockchain.ieee.org>

International

2018-2021

SITAVR – Territorial Archaeological Information System of Verona

DEPARTMENT OF COMPUTER SCIENCE, DEPARTMENT OF CULTURES AND CIVILIZATIONS – UNIVERSITY OF VERONA

- Role: Member
- <https://sitavr.scienze.univr.it/>

National

2010-2020

Business Process Management (BPM) Research Group

QUEENSLAND UNIVERSITY OF TECHNOLOGY – EINDHOVEN UNIVERSITY OF TECHNOLOGY

- Role: Member
- <http://bpmcenter.org/>

International

2009-2012

SpatialDbGroup

POLITECNICO DI MILANO – UNIVERSITY OF VERONA

- Role: Member
- <http://spatialdbgroup.polimi.it/>

National

2008-2020

STARS – Semistructured Temporal clinical Geographical Systems

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

- Role: Member
- <http://stars.di.univr.it/>

National

2004-2020

Research Collaborations

Prof. Alberto Belussi, Department of Computer Science - University of Verona (Italy)
Prof. Elisa Quintarelli, Department of Computer Science - University of Verona (Italy)
Prof. Damiano Carra, Department of Computer Science - University of Verona (Italy)
Prof. Carlo Combi, Department of Computer Science - University of Verona (Italy)
Prof. Roberto Posenato, Department of Computer Science - University of Verona (Italy)
Prof. Fausto Spoto, Department of Computer Science - University of Verona (Italy)
Prof. Mariano Ceccato, Department of Computer Science - University of Verona (Italy)
Prof. Davide Quaglia, Department of Computer Science - University of Verona (Italy)
Prof. Mila Dalla Preda, Department of Computer Science - University of Verona (Italy)
Prof. Patrizia Basso, Department of Cultures and Civilizations - University of Verona (Italy)
Prof. Mauro Negri, Department of Electronics, Information and Bioengineering - Politecnico di Milano (Italy)
Prof. Mario Covarrubias Rodriguez, Virtual Prototyping and Augmented Reality Lab - Politecnico di Milano, Lecco Campus (Italy)
Prof. Tania Cerquitelli, Department of Control and Computer Engineering - Politecnico di Torino (Italy)
Prof. Silvia Chiusano, Department of Control and Computer Engineering - Politecnico di Torino (Italy)
Prof. Barbara Catania, Department of Informatics, Bioengineering, Robotics and Systems Engineering - University of Genoa (Italy)
Prof. Francesco Ricci, Faculty of Computer Science, Free University of Bozen-Bolzano (Italy)
Prof. Ahmed Eldawy, Department of Computer Science and Engineering, University of California, Riverside (USA)
Prof. Marcello La Rosa, School of Computing and Information Systems, University of Melbourne (Australia)
Prof. Pierre Hallot, Université de Liège (Belgium)
Prof. Roland Billen, Université de Liège (Belgium)
Prof. Kostas Stefanidis, Faculty of Information Technology and Communication Sciences (ITC), Tampere University (Finland)

Editorial Service

EDITORS OF INTERNATIONAL JOURNALS

Action Editor of the journal GeoInformatica

SPRINGER

- <https://link.springer.com/journal/10707/editorial-board>

International

2024 - present

Review Editor in Theoretical Computer Science

FRONTIERS

- <https://loop.frontiersin.org/people/1545837/overview>

International

2024 - present

Guest Editor of the Special Issue “Blockchain for Information Systems: Information Management and Data Security”

ELECTRONICS

- Role: Guest editor with Muhammad Bin Saif and Aysajan Abidin
- https://www.mdpi.com/journal/electronics/special_issues/B96669ACD2

International

2026

Guest Editor of the Special Issue “Big Data Provenance Management in the Internet of Things”

International

FRONTIERS IN BIG DATA

2022

- Role: Guest Editor, with Mu Yang, Federica Paci, Chi-Hua Chen, and Chunjia Han
- <https://www.frontiersin.org/research-topics/29582/big-data-provenance-management-in-the-internet-of-things>

Guest Editor of the Special Issue “Advanced Data Mining Techniques for IoT and Big Data”

International

BIG DATA AND COGNITIVE COMPUTING

2022

- Role: Guest Editor, with Elisa Quintarelli
- https://www.mdpi.com/journal/BDCC/special_issues/data_techniques

Guest Editor of the Special Issue “Blockchain-Based Proof of Location”

International

ISPRS INTERNATIONAL JOURNAL OF GEO-INFORMATION

2021

- Role: Guest Editor
- https://www.mdpi.com/journal/ijgi/special_issues/blockchain_location

Guest Editor of the Special Issue “Spatial Data Infrastructure and Process Modeling”

International

ISPRS INTERNATIONAL JOURNAL OF GEO-INFORMATION

2021

- Role: Guest Editor, with Alberto Belussi
- https://www.mdpi.com/journal/ijgi/special_issues/GIS_infrastructure

Guest Editor of the Special Issue “Big Data Analytics for Smart Cities”

International

ELECTRONICS (MDPI)

2020

- Role: Guest Editor, with Tania Cerquitelli and Silvia Chiusano
- https://www.mdpi.com/journal/electronics/special_issues/urban_data_analytics

Guest Editor of the Special Issue “Distributed and Parallel Architectures for Spatial Data”

International

ISPRS INTERNATIONAL JOURNAL OF GEO-INFORMATION

2019

- Role: Guest Editor, with Alberto Belussi, Damiano Carra, and Eliseo Clementini
- http://www.mdpi.com/journal/ijgi/special_issues/distributed_parallel_architectures_spatial_data

Co-Editor of “Computing Techniques for Spatio-Temporal Data in Archaeology and Cultural Heritage”

International

PROCEEDINGS OF THE COARCH 2018 WORKSHOP

2019

- Role: Editor, with Alberto Belussi, Roland Billen, and Pierre Hallot
- <http://ceur-ws.org/Vol-2230/>

MEMBER OF THE BOARDS OF INTERNATIONAL JOURNALS

Journal Topic Board Member

International

INTERNATIONAL JOURNAL OF GEO-INFORMATION (MDPI)

2021 - present

- Role: Special Issues and Collections in MDPI journals
- https://www.mdpi.com/journal/ijgi/topic_editors

Journal Topic Board Member

International

ELECTRONICS (MDPI)

2021 - present

- Role: Special Issues and Collections in MDPI journals
- https://www.mdpi.com/journal/electronics/topic_editors

Reviewer Board Member

International

INTERNATIONAL JOURNAL OF GEO-INFORMATION (MDPI)

2021 - present

- Role: Special Issues and Collections in MDPI journals
- https://www.mdpi.com/journal/ijgi/submission_reviewers

REVIEWER FOR INTERNATIONAL CONFERENCES

- 33rd “ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems” (ACM SIGSPATIAL 2025)
- 29th “European Conference on Advances in Databases and Information Systems” (ADBIS 2025)
- 7th “7th International Conference on Blockchain Computing and Applications” (BCCA 2025)
- 9th “International Workshop on Data Analytics solutions for Real-Life APplications” (DARLI-AP’25)
- 13th “IEEE International Conference on Healthcare Informatics” (IEEE-ICHI 2025)
- 26th “IEEE International Conference on Mobile Data Management” (MDM 2025)
- 32nd “ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems” (ACM SIGSPATIAL 2024)
- 28th “European Conference on Advances in Databases and Information Systems” (ADBIS 2024)
- 4th “International Workshop on Data science for equality, inclusion and well-being challenges” (DS4EIW 2024)
- 18th “IEEE International Conference Application of Information and Communication Technologies” (AICT 2024)

- 16th “International Conference on Spatial Information Theory” (COSIT 2024)
- 25th “IEEE International Conference on Mobile Data Management” (MDM 2024)
- 12th “IEEE International Conference on Healthcare Informatics” (IEEE-ICHI 2024)
- 8th “International Workshop on Data Analytics solutions for Real-Life Applications” (DARLI-AP’24)
- 27th “European Conference on Advances in Databases and Information Systems” (ADBIS 2023)
- 3rd “International Workshop on Data science for equality, inclusion and well-being challenges” (DS4EIW 2023)
- 31st “ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems” (ACM SIGSPATIAL 2023)
- 24th “IEEE International Conference on Mobile Data Management” (MDM 2023)
- 11th “IEEE International Conference on Healthcare Informatics” (IEEE-ICHI 2023)
- 7th “International Workshop on Data Analytics solutions for Real-Life Applications” (DARLI-AP’23)
- 12th “International Conference on Advanced Geographic Information Systems, Applications, and Services” (GEOProcessing 2023)
- 12th “International Conference on Advances in Satellite and Space Communications” (SPACOMM 2023)
- 2nd “International Workshop on Data science for equality, inclusion and well-being challenges” (DS4EIW 2022)
- 30th “ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems” (ACM SIGSPATIAL 2022)
- 26th “European Conference on Advances in Databases and Information Systems” (ADBIS 2022)
- 15th “International Conference on Spatial Information Theory” (COSIT 2022)
- 10th “IEEE International Conference on Healthcare Informatics” (IEEE-ICHI 2022)
- 6th “International Workshop on Data Analytics solutions for Real-Life Applications” (DARLI-AP’22)
- 9th IEEE International Conference on Healthcare Informatics (ICHI 2021)
- 29th “ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems” (ACM SIGSPATIAL 2021)
- 5rd “International Workshop on Data Analytics solutions for Real-Life Applications” (DARLI-AP’21)
- 28th “ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems” (ACM SIGSPATIAL 2020)
- IEEE Artificial Intelligence & Knowledge Engineering 2020 (AIKE 2020)
- 17th “International Symposium on Spatial and Temporal Databases” (SSTD’21)
- 28th Symposium on Advanced Database Systems (SEBD 2020)
- 8th IEEE International Conference on Healthcare Informatics (ICHI 2020)
- 12th “International Conference on Advanced Geographic Information Systems, Applications, and Services” GEOProcessing 2020)
- 12th “International Conference on Advances in Satellite and Space Communications” (SPACOMM 2020)
- 4th “International Workshop on Data Analytics solutions for Real-Life Applications” (DARLI-AP’20)
- 27th Symposium on Advanced Database Systems (SEBD 2019)
- 27th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (ACM SIGSPATIAL 2019)
- 7th IEEE International Conference on Healthcare Informatics (ICHI 2019)
- 14th International Conference on Spatial Information Theory (COSIT 2019)
- 3rd “International Workshop on Data Analytics solutions for Real-Life Applications” (DARLI-AP’19)
- 2nd “Workshop on Computing Techniques for Spatio-Temporal Data in Archaeology and Cultural Heritage” (COARCH’18)
- 13th International Conference on Spatial Information Theory (COSIT 2017)
- 1st “Workshop on Computing Techniques for Spatio-Temporal Data in Archaeology and Cultural Heritage” (COARCH’17)
- 14th East-European Conference on Advances in Databases and Information Systems (ADBIS 2010)

REVIEWER FOR INTERNATIONAL SCIENTIFIC JOURNALS

- IEEE Access
- Journal of Parallel and Distributed Computing (Elsevier)
- Journal of Visual Languages and Computing (Elsevier)
- Computer Networks (Elsevier)
- Expert Systems With Applications (Elsevier)
- Artificial Intelligence in Medicine (Elsevier)
- Future Generation Computer Systems (Elsevier)
- Information Processing and Management (Elsevier)
- Knowledge-Based Systems (Elsevier)
- Applied Soft Computing (Elsevier)
- Technovation (Elsevier)
- International Journal of Geographical Information Science (Taylor & Francis)
- International Journal of Digital Earth (Taylor & Francis)
- Information Systems Frontiers (Springer)
- Journal of Geographical Systems (Springer)
- Journal of Cluster Computing (Springer)
- Journal of Computing (Springer)
- Journal of Expert Systems with Applications (Springer)
- Ethics and Information Technology (Springer)
- Knowledge and Information Systems (Springer)
- Data Mining and Knowledge Discovery (Springer)

- Data Science and Engineering (Springer)
- ACM Transactions on Spatial Algorithms and Systems
- ACM Transactions on Recommender Systems
- ACM Journal on Computing and Cultural Heritage
- MDPI ISPRS International Journal of Geo-Information
- MDPI Electronics
- MDPI Future Internet
- MDPI Land
- MDPI Applied Sciences
- MDPI Symmetry
- MDPI Sustainability
- MDPI Mathematics
- MDPI Journal of Sensor and Actuator Networks
- MDPI Blockchains
- MDPI Information
- MDPI Journal of Sensor and Actuator Networks
- SpringerNature
- Knowledge-Based Systems
- International Journal of Information Technology & Decision Making

Program and Organizing Committees

CHAIR ROLES FOR INTERNATIONAL CONFERENCES

- **Senior Program Chair (SPC) for Short Paper Track** for the *34th International Conference on Advances in Geographic Information Systems Conference* (ACM SIGSPATIAL 2026), Riverside, CA, USA, 3–6 November 2026
- **Proceedings Co-Chair** for the *XXX International Conference on Advances in Geographic Information Systems* (ACM SIGSPATIAL 2026), Riverside, CA, USA, 3–6 November 2026
- **Organization Chair** for the *38th International Conference on Advanced Information Systems Engineering* (CAiSE'26), Verona (Italy), 8–12 June 2026.
- **Session Chair** of the “Query Optimization” session at the *29th European Conference on Advances in Databases and Information Systems* (ADBIS 2025), Tampere (Finland), 23–26 September 2025.
- **Co-General Chair** for the *1st Workshop on Information Technology for Tourism and Culture Industries* (IT4TOCI'25), Tampere (Finland), 23 September 2025, workshop of the *29th European Conference on Advances in Databases and Information Systems* (ADBIS 2025).
- **Session Chair** of the sessions “Cybersecurity & Privacy & Networking” and “Digital Economy & Socio-economic Development” at the *18th IEEE International Conference on Application of Information and Communication Technologies* (AICT 2024), Turin (Italy), 25–27 September 2024.
- **Session Chair** of the “Query Processing I” session at the *27th European Conference on Advances in Databases and Information Systems* (ADBIS 2023), Barcelona (Spain), 4–7 September 2023.
- **Session Chair** of the Research Track (Session 2) at the *17th International Symposium on Spatial and Temporal Databases* (SSTD21), Online, 23–25 August 2021.
- **Co-General Chair** for the *2nd Workshop on Computing Techniques for Spatio-Temporal Data in Archaeology and Cultural Heritage* (COARCH'18), Melbourne (Australia), 28 August 2018, workshop of the *10th International Conference on Geographic Information Science* (GiScience 2018)
- **Co-General Chair** for the *1st Workshop on Computing Techniques for Spatio-Temporal Data in Archaeology and Cultural Heritage* (COARCH'17), L'Aquila (Italy), 4 September 2017, workshop of the *13th International Conference on Spatial Information Theory* (COSIT 2017)

PROGRAM COMMITTEE MEMBER FOR INTERNATIONAL CONFERENCES

- *10th International Workshop on Data Analytics Solutions for Real-Life Application* (DARLI-AP 2026), EDBT/ICDT 2026 Joint Conference, 24 March 2026, Tampere (Finland)
- *30th European Conf. on Advances in Databases and Information Systems* (ADBIS 2026), 28 September–1 October 2026, Orléans (France)
- *17th International Conference on Spatial Information Theory* (COSIT 2026), 22–25 September, York (UK)
- *7th International Conference on Blockchain Computing and Applications* (BCCA 2025), 14–17 October 2025, Dubrovnik (Croatia)
- *29th European Conf. on Advances in Databases and Information Systems* (ADBIS 2025), 23–26 September 2025, Tampere (Finland)
- *33rd ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems - Short Paper Track*, 3–6 November 2025, Minneapolis (USA)
- *12th IEEE International Conference on Healthcare Informatics* (IEEE-ICHI 2025), 18–21 June 2025, Calabria (Italy)

- 9th International Workshop on Data Analytics Solutions for Real-Life Application (DARLI-AP 2025), EDBT/ICDT 2025 Joint Conference, 25–28 March 2025, Barcelona (Spain)
- 4th International Workshop on Data Science for Equality, Inclusion and Well-being Challenges (DS4EIW 2024), 2024 IEEE International Conference on Big Data (IEEE BigData 2024), 15–18 December 2024, Washington DC (USA)
- 8th IEEE International Conference on Application of Information and Communication Technologies (AICT 2024), 25–27 September 2024, Turin (Italy)
- 12th IEEE International Conference on Healthcare Informatics (IEEE-ICHI 2024), 3–6 June 2024, Orlando, Florida (USA)
- 8th International Conference on Control, Automation and Diagnosis (ICCAD'24), 15–17 May 2024, Paris (France)
- 25th IEEE International Conference on Mobile Data Management (MDM 2024), 24–27 June 2024, Brussels (Belgium)
- 28th European Conference on Advances in Databases and Information Systems (ADBIS 2024), 28–31 August 2024, Bayonne (France)
- 2024 Demo Track of the 25th IEEE International Conference on Mobile Data Management (MDM 2024), 24–27 June 2024, Brussels (Belgium)
- 16th International Conference on Spatial Information Theory (COSIT 2024), 17–20 September 2024, Québec City (Canada)
- 8th International Workshop on Data Analytics Solutions for Real-Life Applications (DARLI-AP'24), 25 March–28 April 2024, Paestru (Italy). Workshop of the “26th International Conference on Extending Database Technology” (EDBT 2024)
- 31st ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (SIGSPATIAL 2023), 13–16 November 2023, Hamburg (Germany)
- 27th European Conference on Advances in Databases and Information Systems (ADBIS 2023), 4–7 September 2023, Barcelona (Spain)
- 18th International Symposium on Spatial and Temporal Data (SSTD 2023), 23–25 August 2023, Calgary, Alberta (Canada)
- 11th IEEE International Conference on Healthcare Informatics (IEEE-ICHI 2023), 10–13 June 2023, Houston, Texas (USA)
- 7th International Workshop on Data Analytics Solutions for Real-Life Applications (DARLI-AP'23), 28 March–31 April 2023, Ioannina, Greece. Workshop of the “25th International Conference on Extending Database Technology” (EDBT 2023)
- 12th International Conference on Advanced Geographic Information Systems, Applications, and Services (GEOProcessing 2023), 24–28 April 2023, Venice (Italy)
- 12th International Conference on Advances in Satellite and Space Communications (SPACOMM 2023), 24–28 April 2023, Venice (Italy)
- 26th European Conference on Advances in Databases and Information Systems (ADBIS 2022), 5–8 September 2022, Turin (Italy)
- 15th International Conference on Spatial Information Theory (COSIT 2022), 5–9 September 2022, Kobe, Japan
- 10th IEEE International Conference on Healthcare Informatics (IEEE-ICHI 2022), 11–14 June 2022, Rochester, Minnesota (USA)
- 6th International Workshop on Data Analytics Solutions for Real-Life Applications (DARLI-AP'22), 29 March–1 April 2022, Edinburgh (UK). Workshop of the “25th International Conference on Extending Database Technology” (EDBT 2022)
- 1st International Workshop on Data Science for Equality, Inclusion and Well-being Challenges (DS4EIW 2021), 15–18 December 2021, Online. Workshop of IEEE BigData 2021
- 17th International Symposium on Spatial and Temporal Databases (SSTD21), 23–25 August 2021, Online
- 9th IEEE International Conference on Healthcare Informatics (IEEE-ICHI 2021), 9–12 August 2021, Victoria (Canada)
- 5th International Workshop on Data Analytics Solutions for Real-Life Applications (DARLI-AP'21), Nicosia (Cyprus), 23 March 2021, workshop of the 24th International Conference on Extending Database Technology (EDBT 2021)
- 4th International Workshop on Data Analytics Solutions for Real-Life Applications (DARLI-AP'20), Copenhagen (Denmark), 30 March 2020, workshop of the 23rd International Conference on Extending Database Technology (EDBT 2020)
- 8th IEEE International Conference on Healthcare Informatics (ICHI 2020), Oldenburg (Germany), 15–18 June 2020
- 12th International Conference on Advanced Geographic Information Systems, Applications, and Services (GEOProcessing 2020), Barcelona (Spain), 22–26 March 2020
- 12th International Conference on Advances in Satellite and Space Communications (SPACOMM 2020), Lisbon (Portugal), 23 February 2020
- 7th IEEE International Conference on Healthcare Informatics (ICHI 2019), Beijing (China), 10–13 June 2019
- 14th International Conference on Spatial Information Theory (COSIT 2019), Regensburg (Germany), 9–13 September 2019
- 3rd International Workshop on Data Analytics Solutions for Real-Life Applications (DARLI-AP'19), Lisbon (Portugal), 26 March 2019, workshop of the 22nd International Conference on Extending Database Technology (EDBT 2019)

ORGANIZING COMMITTEE MEMBER FOR INTERNATIONAL CONFERENCES

- 1st GreenWine International Scientific Congress, Verona (Italy), 19–20 May 2025
- 2nd Workshop on Computing Techniques for Spatio-Temporal Data in Archaeology and Cultural Heritage (COARCH'18), Melbourne (Australia), 28 August 2018, workshop of the 10th International Conference on Geographic Information Science (GiScience 2018)
- 1st Workshop on Computing Techniques for Spatio-Temporal Data in Archaeology and Cultural Heritage (COARCH'17), L'Aquila (Italy), 4 September 2017, workshop of the 13th International Conference on Spatial Information Theory (COSIT 2017)
- 21st International Symposium on Temporal Representation and Reasoning (TIME 2014), Verona (Italy), 8–10 September 2014
- 9th ArcheoFOSS Workshop: Free, Libre and Open Source Software and Open Formats in Archaeological Research Processes, Verona (Italy), 19–20 June 2014
- 12th Conference on Artificial Intelligence in Medicine (AIME 2009), Verona (Italy), 18–22 July 2009

PUBLIC ENGAGEMENT

Blockchain Innovation Day

DEPARTMENT OF COMPUTER SCIENCE, DEPARTMENT OF MANAGEMENT - UNIVERSITY OF VERONA

Role: Organizer and Scientific Coordinator

Verona, Italy

23 Apr 2024

Workshop on Web3/Bitcoin/Crypto

DEPARTMENT OF COMPUTER SCIENCE - UNIVERSITY OF VERONA AND BINANCE ACADEMY

Role: Organizer and Scientific Coordinator

Verona, Italy

15 Dec 2023

Presentations and Invited Talks

PRESENTATIONS AT INTERNATIONAL CONFERENCES

- *From ER Conceptual Models to Document-Based NoSQL Logical Models*, presentation at the “29th European Conference on Advances in Databases and Information Systems (ADBIS 2025)”, Tampere (Finland)
- *A Blockchain-Based Platform for Sharing and Rewarding User-Generated Content*, presentation at the “1st International Workshop on Information Technology for Tourism and Cultural Industries (IT4TOCI 2025)”, ADBIS 2025, Tampere (Finland)
- *Understanding the Evolution in Tourist Behavior Patterns through Context-Aware Spatio-Temporal k-Means*, presentation at the “4th International Workshop on Data science for equality, inclusion and well-being challenges (DS4EIW 2024)”, IEEE Big Data 2024, Washington DC (USA)
- *Combining Convolutional and Recurrent Neural Networks to Improve Greenhouse Microclimate Mapping*, presentation at the “2024 IEEE International Workshop on Metrology for Agriculture and Forestry” (MetroAgrifor 2024), Padua (Italy)
- *Forecasting Dissolved Oxygen Level in Land-Based Fish Farms using a Context-Aware Recurrent Neural Network*, presentation at the “2024 IEEE International Workshop on Metrology for Agriculture and Forestry” (MetroAgrifor 2024), Padua (Italy)
- *Extract User-Generated Content from Spatial Data Provision Services*, presentation at the “18th IEEE International Conference on Application of Information and Communication Technologies” (AICT 2024), Turin (Italy)
- *Forecasting POI Occupation with Contextual Machine Learning*, presentation at the “26th European Conference on Advances in Databases and Information Systems” (ADBIS 2022), Turin (Italy)
- *Power and Pitfalls of Generic Smart Contracts*, presentation at the “3rd IEEE International Conference on Blockchain Computing and Applications” (BCCA 2021), Tartu (Estonia)
- *A Context-based Approach for Partitioning Big Data*, presentation at the “23rd International Conference on Extending Database Technology” (EDBT 2020), Copenhagen (Denmark)
- *Sequences of Recommendations for Dynamic Groups: What is the Role of Context?*, presentation at the 8th IEEE International Congress on Big Data (BigData Congress 2019), Milan (Italy)
- *The Blockchain Role in Ethical Data Acquisition and Provisioning*, presentation at the 1st International Workshop on Processing Information Ethically (PIE’2019) in the 31st International Conference on Advanced Information Systems Engineering (CAiSE 2019), Rome (Italy)
- *What is the Role of Context in Fair Group Recommendations?*, presentation at the 1st International Workshop on Processing Information Ethically (PIE’2019) in the 31st International Conference on Advanced Information Systems Engineering (CAiSE 2019), Rome (Italy)
- *The Rise of Enforceable Business Processes from the Hashes of Blockchain-Based Smart Contracts*, presentation at the 20th International Conference on Business Process Modeling, Development and Support (BPMDS’2019) in conjunction with the 31st International Conference on Advanced Information Systems Engineering (CAiSE 2019), Rome (Italy)
- *Enhancing CIDOC-CRM Models for GeoSPARQ Processing with MapReduce*, presentation at the 2nd Workshop on Computing Techniques for Spatio-Temporal Data in Archaeology and Cultural Heritage (COARCH’18) in conjunction with GIScience 2018, Melbourne (Australia)
- *Towards the Extraction of Semantics from Incomplete Archaeological Records*, presentation at the 1st Workshop on Computing Techniques for Spatio-Temporal Data in Archaeology and Cultural Heritage (COARCH’17) in the 13th International Conference on Spatial Information Theory, L’Aquila (Italy)
- *Towards Massive Spatial Data Validation with SpatialHadoop*, presentation at the 5th ACM SIGSPATIAL Workshop on Analytics for Big Geospatial Data (BigSpatial 2016), Burlingame, California (USA)
- *A Framework for Managing Temporal Dimensions in Archaeological Data*, presentation at the 21st International Symposium on Temporal Representation and Reasoning (TIME 2014), Verona (Italy)
- *The NestFlow Interpretation of Workflow Control-Flow Patterns*, presentation at the 15th International Conference on Advances in Databases and Information Systems (ADBIS 2011), Vienna (Austria)
- *Workflow Technology for Geo-Processing: The Missing Link*, presentation at the 2nd International Conference on Computing for Geospatial Research & Application (COM.Geo ’11), Washington DC (USA)
- *From the Conceptual Design of Spatial Constraints to their Implementation in Real Systems*, presentation at the 17th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (SIGSPATIAL 2009), Seattle, Washington (USA)
- *Transferring Segmented Properties in the Conflation of Transportation Networks*, presentation at the 12th AGILE International Conference on Geographic Information Science (AGILE 2009), Hannover (Germany)

INVITED TALKS AND SEMINARS

Lake Tech Day

BENACUS HUB - UNIVERSITY OF VERONA - MUNICIPALITY OF PESCHIERA DEL GARDA

Role: Speaker – Recommendation systems in the tourism sector: know your user and provide personalized suggestions

Peschiera del Garda, Italy

28 May 2025

Blockchain, Smart Contracts and NFTs

TEACHING ACTIVITY FOR THE TRAINING COURSE “FOODTECH INNOVATION”

Verona Agrifood Innovation Hub

Verona, Italy

25 Jun 2024

Blockchain

TEACHING ACTIVITY FOR THE SMACT DIGITAL TRANSFORMATION TRAINING PROGRAMME

Digital Transformation Training: Governing digitalization, technologies and applications

Cortina, Italy

22-23 Feb 2024

Introduction to Blockchain, Smart Contracts and NFTs

INVITED SEMINAR

Digital Transition: Blockchain for Businesses and Supply Chains - Unioncamere del Veneto

Verona, Italy

17 October 2023

10 Years of Blockchain: State of Art and Future Research Directions

INVITED SEMINAR

Invited seminar at Melbourne University

Melbourne, Australia

27/08/2018

Improved Error Reporting for Business Process Modeling

INVITED SEMINAR

Invited seminar within the “Business Information Systems” course, Master’s Degree Programme in Computer Science, University of Verona

Verona, Italy

13/06/2011

Comparative Analysis of Scientific Workflows and Business Workflows

BPM SEMINAR SERIES

Invited seminar at the Business Process Management Research Group - Queensland University of Technology (Australia)

Brisbane, Australia

21/07/2010

Awards and Honors

- | | |
|------|--|
| 2024 | Best Article of the Year Award 2024 for the Journal of Information Technology & Tourism (JITT) , Promoting sustainable tourism by recommending sequences of attractions with deep reinforcement learning |
| 2019 | Outstanding Reviewer Award , MDPI International Journal of Geo-Information |
| 2018 | Certificate of Appreciation for the review process , International Journal of Digital Earth |
| 2018 | Best Fast Forward Presentation Runner-up at the 26th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems , Detecting Skewness of Big Spatial Data in SpatialHadoop |
| 2011 | Best Short Paper Award at the 21st ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems , On Robust Interpretation of Topological Relations in Identity and Tolerance Models |

Teaching Activity

Business Intelligence

MASTER’S DEGREE IN COMPUTER SCIENCE AND ENGINEERING – UNIVERSITY OF VERONA

- A.Y. 2025-2026 – Role: Course co-owner (3 CFU - 18 hours)
- A.Y. 2024-2025 – Role: Course co-owner (2 CFU - 12 hours)
- A.Y. 2023-2024 – Role: Course co-owner (3 CFU - 18 hours)

Databases

BACHELOR’S DEGREE IN COMPUTER SCIENCE – UNIVERSITY OF VERONA

- Module: Database technologies
- A.Y. 2025-2026 – Role: Module owner (4 CFU - 32 hours)
- A.Y. 2024-2025 – Role: Module owner (3 CFU - 24 hours)
- A.Y. 2023-2024 – Role: Module owner (3 CFU - 24 hours)
- A.Y. 2022-2023 – Role: Module owner (3 CFU - 24 hours)
- A.Y. 2021-2022 – Role: Module owner (3 CFU - 24 hours)
- A.Y. 2020-2021 – Role: Module owner (3 CFU - 24 hours)

Databases

BACHELOR’S DEGREE IN COMPUTER SCIENCE, BACHELOR’S DEGREE IN BIOINFORMATICS – UNIVERSITY OF VERONA

- Module: Laboratory
- A.Y. 2024-2025 – Role: Module owner (3 CFU - 36 hours)
- A.Y. 2023-2024 – Role: Module owner (3 CFU - 36 hours)
- A.Y. 2022-2023 – Role: Module owner (3 CFU - 36 hours)
- A.Y. 2021-2022 – Role: Module owner (3 CFU - 36 hours)
- A.Y. 2020-2021 – Role: Module owner (3 CFU - 36 hours)

Programming 1

BACHELOR'S DEGREE IN COMPUTER SCIENCE – UNIVERSITY OF VERONA

- A.Y. 2025-2026 – Role: Owner of the theory module and the exercise module (6+2 CFU - 72 hours)
- A.Y. 2024-2025 – Role: Owner of the theory module (6 CFU - 48 hours)
- A.Y. 2023-2024 – Role: Course owner for the second semester (5 CFU - 40 hours)

Introduction to Smart Contracts Programming for Ethereum

BACHELOR'S DEGREE IN COMPUTER SCIENCE, BACHELOR'S DEGREE IN BIOINFORMATICS, MASTER'S DEGREE IN COMPUTER SCIENCE AND ENGINEERING – UNIVERSITY OF VERONA

- A.Y. 2025-2026 - Role: Course owner (3 CFU - 16 hours)
- A.Y. 2024-2025 - Role: Course owner (3 CFU - 16 hours)
- A.Y. 2023-2024 - Role: Course owner (3 CFU - 16 hours)

Introduction to Blockchain

PHD PROGRAMME IN COMPUTER SCIENCE – UNIVERSITY OF VERONA

- A.Y. 2025-2026 - Role: Course owner (Duration 12 hours)
- A.Y. 2023-2024 - Role: Course owner (Duration 12 hours)
- A.Y. 2022-2023 - Role: Course owner (Duration 12 hours)
- A.Y. 2021-2022 - Role: Course owner (Duration 12 hours)

Teaching Database Concepts

TEACHING TRAINING – UNIVERSITY OF VERONA

- A.Y. 2025/2026 – Role: Module owner (12 hours)
- A.Y. 2024/2025 – Role: Module owner (12 hours)

Programming II and Software Engineering

BACHELOR'S DEGREE IN COMPUTER SCIENCE, BACHELOR'S DEGREE IN BIOINFORMATICS – UNIVERSITY OF VERONA

- Module: Laboratory of Software Engineering
- A.Y. 2019-2020 – Role: Module owner (1 CFU - 12 hours)

Big Data Systems and Analytics

PHD PROGRAMME IN COMPUTER SCIENCE – UNIVERSITY OF VERONA

- Role: Course co-owner
- A.Y. 2019-2020 – Duration: 12 hours taught by the undersigned (20 total course hours)

C Programming Language

BACHELOR'S DEGREE IN APPLIED MATHEMATICS, MASTER'S DEGREE IN MATHEMATICS – UNIVERSITY OF VERONA

- A.Y. 2019-2020 – Role: Course owner (2 CFU - 16 hours)
- A.Y. 2018-2019 – Role: Adjunct Professor (2 CFU - 16 hours)

Programming

BACHELOR'S DEGREE IN BIOINFORMATICS – UNIVERSITY OF VERONA

- Module: Laboratory
- A.Y. 2017-2018 – Role: Adjunct Professor (3 CFU - 36 hours)

Databases

BACHELOR'S DEGREE IN COMPUTER SCIENCE – UNIVERSITY OF VERONA

- Module: Laboratory
- A.Y. 2014-2015 Role: Adjunct Professor (3 CFU - 36 hours)

Information systems and security

SPECIAL TEACHING QUALIFICATION PROGRAMS (PAS), CLASS C310 – UNIVERSITY OF VERONA

- Module: Fundamentals
- A.Y. 2014-2015 – Role: Adjunct Professor (2 CFU - 16 hours)

Information systems and security

SPECIAL TEACHING QUALIFICATION PROGRAMS (PAS), CLASS A042 – UNIVERSITY OF VERONA

- Module: Teaching
- A.Y. 2013-2014 – Role: Adjunct Professor (2 CFU - 16 hours)

Programming I

BACHELOR'S DEGREE IN COMPUTER SCIENCE – UNIVERSITY OF VERONA

- Module: Laboratory
- A.Y. 2012-2013 – Role: Adjunct Professor (4 CFU - 48 hours)

Supervision of Students and Researchers

PHD STUDENT SUPERVISION

Since October 2024, she has been **co-supervisor** of the **PhD** student Sidra Nasir Rajput, PhD Program in Computer Science at the Department of Computer Science – University of Verona, 40° cycle (1 October 2024 – 30 September 2027), supervisor: Prof. Pietro Sala.

Since October 2024, she has been **co-supervisor** of the **PhD** student Mehran Tarif Hokmabadi, PhD Programme in Computer Science at the Department of Computer Science – University of Verona, 40° cycle (1 October 2024 – 30 September 2027), funded by the Italian Space Agency, supervisor: Prof. Davide Quaglia.

Since October 2023, she has been **co-supervisor** of the **PhD** student Anna Dalla Vecchia, PhD Program in Computer Science at the Department of Computer Science – University of Verona, 39° cycle (1 October 2023 – 30 September 2026), supervisor: Prof. Elisa Quintarelli.

From November 2022 to October 2025, she was **supervisor** of the **PhD** student Muhammad Bin Saif, PhD Program in Computer Science at the Department of Computer Science – University of Verona, 38° cycle (1 December 2022 – 30 November 2025), co-supervisor: Prof. Mila Dalla Preda.

SCIENTIFIC COORDINATOR FOR RESEARCH SCHOLARSHIPS AND FELLOWSHIPS

Since May 2026, she has been **scientific coordinator** of the post-graduate **Research Assignment** IdR39/26 awarded to Dr Marco Olini, entitled “ReBalance: Blockchain technology and IoT devices for active and sustainable tourism”, Department of Computer Science, University of Verona.

Since May 2026, she has been **scientific coordinator** of the post-graduate **Research Assignment** IdR40/26 awarded to Dr Riccardo Zambon, entitled “ReBalance: Artificial intelligence and big data for active and sustainable tourism”, Department of Computer Science, University of Verona.

Since December 2025, she has been **scientific coordinator** of the post-graduate **Research Assignment** IdR09/25 awarded to Dr Muhammad Bin Saif, entitled “Design and implementation of an advanced blockchain-based solution for wood supply-chain traceability”, Department of Computer Science, University of Verona.

From March 2026 to June 2026, she was **scientific coordinator** of the post-graduate **Research Scholarship** BO03/26 awarded to Dr Fatemeh Moradi, entitled “Development of a blockchain-based platform for supporting traceability of the wood supply chain”, Department of Computer Science, University of Verona.

From July 2025 to June 2026, she was **scientific coordinator** of the post-graduate **Research Scholarship** BO09/25 awarded to Dr Ainur Almukambetova, entitled “Study and implementation of machine learning techniques for the automation of HR processes”, Department of Computer Science, University of Verona.

From July 2025 to November 2025, she was **scientific coordinator** of the post-graduate **Research Scholarship** BdR12/25 awarded to Dr Adrian Munteanu, within the research project “Interconnected Nord-Est Innovation Ecosystem (iNEST)”, entitled “Development of a web dashboard for accessing traceability certificates for agri-food products stored on blockchain”, Department of Computer Science, University of Verona.

From July 2025 to November 2025, she was **scientific coordinator** of the post-graduate **Research Scholarship** BdR13/25 awarded to Dr Marco Olini, within the research project “Interconnected Nord-Est Innovation Ecosystem (iNEST)”, entitled “Prototype of an information system based on secure IoT sensors and blockchain smart contracts for collecting and certifying data for digital agriculture and innovative logistics models”, Department of Computer Science, University of Verona.

From 17 February 2025 to 16 June 2025, she was **scientific coordinator** of the post-graduate **Research Scholarship** BO23/24 awarded to Dr Riccardo Zambon, entitled “Development of a recommendation system based on machine learning techniques to be integrated into a platform for configuring aluminium doors and shutters”, Department of Computer Science, University of Verona.

From 16 December 2024 to 15 February 2025, she was **scientific coordinator** of the post-graduate **Research Scholarship** BO21/24 awarded to Dr Riccardo Zambon, entitled “Maintenance and extension of a platform for configuring aluminium doors and shutters”, Department of Computer Science, University of Verona.

From 1 September 2024 to 31 December 2024, she was **scientific coordinator** of the post-graduate **Research Scholarship** BO15/24 awarded to Dr Elisa De Rossi, entitled “Design and development of an augmented-reality platform connected to an aluminium doors and shutters configurator”, Department of Computer Science, University of Verona.

From 13 November 2023 to 13 October 2024, she was **scientific coordinator** of the post-graduate **Research Scholarship** BO12/23 awarded to Dr Riccardo Zambon, entitled “Design and development of a platform for configuring aluminium doors and shutters”, Department of Computer Science, University of Verona.

From March 2023 to March 2025, she was **scientific coordinator** of the **RTD-A** researcher position, iNEST PNRR project, held by Dr Claudio Tomazzoli, research project entitled “Databases, Artificial Intelligence (AI) and robotic systems”, Department of Computer Science, University of Verona.

From January 2021 to December 2021, she was **scientific coordinator** of the Post-Doc **Research Fellowship** awarded to Dr Mauro Gambini, in the scientific-disciplinary sector ING-INF/05 INFORMATION PROCESSING SYSTEMS, for the implementation of the following research programme: *A big data analytical framework for contextual group recommendations*.

Since December 2019, she has been **coordinator** of the development activities carried out within about ten post-graduate research scholarships awarded to students holding a degree in Computer Science and offered by the University of Verona.

THESIS SUPERVISOR AND INTERNSHIP TUTOR

From December 2019 to present, she has been **supervisor** of 55 Bachelor's theses, **co-supervisor** of 6 Bachelor's theses, **supervisor** of 5 Master's theses, **co-supervisor** of 2 Master's theses, and **first external examiner** for 8 Master's degree defences within the Bachelor's and Master's degree programmes offered mainly by the Teaching Board in Computer Science of the University of Verona.

From December 2019 to present, she has served as **academic tutor** in about 60 internship activities carried out by students of the University of Verona, and as **company tutor** in about 40 internal internship activities carried out at the Department of Computer Science of the University of Verona.

In A.Y. 2014/2015, she was **thesis supervisor** for three students who attended the qualification course *Percorsi Abilitanti Speciali (PAS) Classe C310* organised by the University of Verona.

In A.Y. 2013/2014, she was **thesis supervisor** for five students who attended the qualification course *Percorsi Abilitanti Speciali (PAS) Classe A042* organised by the University of Verona.

Institutional Services

PhD Progress Review Committee

2024

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Member of the Committee for the assessment of research progress for the PhD student Elia Brentarolli (PhD Programme in Computer Science – 37th cycle – 1 October 2021 – 30 September 2024).

Member of the Committee for the assessment of research progress for the PhD student Ashraf Sharifi (PhD Programme in Computer Science – 38th cycle – 1 December 2022 – 30 November 2025).

Member of the Committee for the assessment of research progress for the PhD student Veronica Paternolli (PhD Programme in Computer Science – 39th cycle – 1 October 2023 – 30 September 2026).

Member of the Committee for the assessment of research progress for the PhD student Gospel Ozioma Nnadi (PhD Programme in Computer Science – 39th cycle – 1 October 2023 – 30 September 2026).

Committee for the Award of the PhD Degree

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

18 May 2026

Chair of the Examination Committee for the Award of the PhD Degree in Computer Science. Candidate: Dr Muhammad Bin Saif, PhD Programme in Computer Science, cycle 41. Committee members:

- Prof. Sara Migliorini (University of Verona) – chair
- Prof. Vlado Stankovski (University of Ljubljana)
- Dr Carlo Mazzocca (University of Salerno)

Committee for the Award of the PhD Degree

FREE UNIVERSITY OF BOZEN-BOLZANO

14 Jan 2026

Member of the Examination Committee for the Award of the PhD Degree. Candidate: Dr Abdi Siamak, PhD Programme in Computer Science and Technology, cycle 38. Committee members:

- Prof. Giuseppe di Fatta (Free University of Bozen-Bolzano) – chair
- Prof. Claudio Savaglio (University of Calabria)
- Dr Sara Migliorini (University of Verona)

Committee for the Award of the PhD Degree

DEPARTMENT OF ENVIRONMENTAL SCIENCES, INFORMATICS AND STATISTICS – CA' FOSCARI UNIVERSITY OF VENICE

6 Feb. 2024

Member of the Examination Committee for the Award of the PhD Degree, decree of the Director of the Department of Environmental Sciences, Informatics and Statistics, Ca' Foscari University of Venice, no. 13/2024, protocol no. 4895 of 10/01/2024. Candidate: Dr Matteo Bolzonella, PhD Programme in Environmental Sciences, 35deg cycle. Committee members:

- Prof. Enrico Bertuzzo (Ca' Foscari University), chair
- Dr Luca Parma (University of Bologna)
- Dr Sara Migliorini (University of Verona)

PLS Contact Person for Computer Science

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Oct 2025 – present

Member of the Department Board

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Oct 2023 – present

Member of the Quality Assurance Committee of the Bachelor's Degree Programme in Computer Science

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Sep 2023 – Sep 2025

Member of the Governing Board of the CLA (University Language Centre)

REPRESENTATIVE OF THE DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Mar 2023 – present

Member of the Teaching Board of the Bachelor's Degree Programme in Computer Science

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Nov 2019 – present

Member of the Department Council of Computer Science

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Nov 2019 – present

Member of the Evaluation Committee for Teaching Tutorship Grants in the SSD INF/ING-INF areas

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

Apr 2023 – Sep 2025

Member of the Faculty Board of the PhD Programme in Computer Science

UNIVERSITY OF VERONA

Apr 2023 – present

Member of the Faculty Board of the PhD Programme in Computer Science

UNIVERSITY OF VERONA

Oct 2020 – Dec 2021

- Participation ended following the issue of Ministerial Decree 226/2021

Tutor for PCTO project (Pathways for Transversal Skills and Orientation, formerly school-work alternation programmes, Law 107/15)

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

A.Y. 2020/2021

- Project under an agreement with I.I.S.S. Copernico Pasoli of Verona.

Percorsi Abilitanti Speciali (PAS) Classe A042

DEPARTMENT OF COMPUTER SCIENCE – UNIVERSITY OF VERONA

A.Y. 2013/2014

- Member of the committee for the final qualification examination (pursuant to Ministerial Decree 249/2010 and subsequent amendments and additions, as well as D.D.G. no. 58/2013 and Departmental Decree no. 45/2013).

Language Skills

Italyn Native speaker
English Intermediate/advanced level
French Elementary level

Participation to the course “English Medium Instruction (EMI)” II edizione

Instructor: Sharon Hartle

Organized by: University of Verona - I-LAB L'innovazione didattica dei docenti

Period: September 2019

Research topics and results

Since her Master's thesis, Sara Migliorini has consistently worked on problems related to the modeling, management, processing, and analysis of spatio-temporal data and of processes involving this type of data, also with reference to heterogeneous and distributed environments. In particular, she has carried out research activities on both the more theoretical and formal aspects and the more engineering-oriented aspects of this topic. She subsequently focused on issues related to the analysis and processing of large amounts of data (big data) from heterogeneous sources and characterized by spatio-temporal dimensions, such as data

collected through sensors and mobile devices. In recent years, she has further investigated topics related to data analysis and processing using the most recent machine learning and deep learning techniques. She has also developed an interest in Blockchain technology, particularly with respect to its possible application in the research field of information systems and IoT devices.

More specifically, the main research activities carried out can be classified into the macro-areas detailed below.

BIG DATA MANAGEMENT AND ANALYTICS

In recent years, there has been a growing increase in the amount of data that must be collected, integrated, processed, and analyzed through IT tools. The term *big data management and analytics* refers to all topics related to the integration, analysis, and processing of large amounts of data, including spatio-temporal data, in order to generate new knowledge from such data.

- **Integration of multi-accuracy spatial data** – Definition of an approach capable of integrating measurements characterized by different positional accuracies (both absolute and relative) and by topological relationships known a priori. This approach includes the definition of a multi-accuracy data model and the definition of an integration algorithm based on the use of the Kalman filter for the metric component and on a set of validation rules for the logical/topological component (see J.37, C.47).
- **Validation of 2D/3D spatial constraints** – The fundamental objective is to ensure consistency between the conceptual specification of a spatial database and its physical implementation. The approach studied and developed involves the automatic transformation of spatial integrity constraints, defined at the conceptual level through the use of templates, into executable procedures. This approach is also referred to as the GeoUML methodology. The physical implementations considered include both relational databases (e.g., PostGIS) and MapReduce environments (e.g., SpatialHadoop) (see J.24, J.25, J.34, C.40, C.41, C.44 C.54, C.55, C.56, C.57).
- **Robustness of vector spatial data and of the topological relationships defined over it** – Study of the effects of a finite vector representation of a dataset on the evaluation of its spatial properties, also with reference to perturbation problems caused by transfer among different systems in distributed environments. In particular, the goal is to ensure that the evaluation of spatial properties over a database always produces the same result even when performed through different implementations of the same algorithm or on different systems/architectures. This topic led to the theoretical study of the properties that guarantee the robustness of spatial data with respect to the main topological relationships and to the development of a set of algorithms for making a generic vector dataset robust (see J.30, J.33, C.45, C.48).
- **MapReduce techniques for spatial data** – Application of the MapReduce paradigm for the efficient implementation of the main operations on spatial data, e.g., spatial join and construction of spatial indexes. The main results concern the definition of theoretical cost models for the distributed spatial join algorithms provided by SpatialHadoop and the proposal of an effective partitioning technique that also takes into account the spatial characteristics of the data (see J.21, J.22, C.26, C.28, C.35, C.37, E.1).
- **Work sharing in distributed systems** – Ability to recognize similarities among a set of jobs submitted to the same distributed system, in order to share common work and avoid the repetition of costly activities. In particular, a work-sharing technique for SparkSQL was defined, based on keeping intermediate results shared among different queries in memory (see C.34, J.23).
- **Management and analysis of incomplete, inaccurate, and vague spatio-temporal information** – This topic finds direct application in the management and analysis of archaeological data, where spatio-temporal information is incomplete, imprecise, and vague, and where there is a close correlation between spatial and temporal aspects. In this context, a fuzzy-logic-based approach was developed, including a data model, a set of rules for deriving temporal information from spatial information, and a procedure for transforming this model into a fuzzy temporal constraint network for subsequent analysis and deduction of new information (see J.18, J.27, J.28, J.29, J.31, J.32, J.35, C.27, C.38, C.39, C.42, C.43, C.46, E.2).
- **Management of semi-structured data** The advent of big data and the need to store heterogeneous information often make it necessary to model semi-structured information or information whose structure changes dynamically over time, as well as to produce approximate queries over it (see C.4, C.58, B.2, B.3).

PROCESS-AWARE INFORMATION SYSTEMS

A Process-Aware Information System (PAIS) is a software system driven by process models and aimed at coordinating and supporting a group of agents in carrying out their activities. These process models are formalized through languages, called Process Modeling Languages (PMLs), suitable for describing software systems in terms of concurrent and interactive components.

- **Control-flow vs Data-flow PML** – Study and comparison of control-flow-oriented and data-flow-oriented PMLs for representing processes aimed at analyzing and processing information, including information with a spatio-temporal extension. In this regard, a process definition language (NestFlow) was studied, combining classical control-flow constructs with specific data-flow primitives based on message exchange (see C.50).
- **Unstructured vs Structured PML** – Study and comparison of PMLs that allow free (graph-oriented) composition of constructs and PMLs that impose a structured representation through properly nested blocks. The comparison concerned both process correctness (avoiding run-time errors by construction) and language expressiveness. In this regard, the NestFlow language provides a structured syntax capable of guaranteeing good run-time properties by construction, while continuing to offer the same expressiveness as an unstructured language thanks to the introduction of data-flow primitives (see C.51).
- **Automatic model correction** – Existing unstructured PMLs are based on Petri Net theory, and model-checking algorithms are defined over them to verify the presence of run-time errors. With respect to these languages, an automatic procedure was defined that is able to correct the main modeling errors through the use of techniques inspired by genetic programming and by the MOSA

optimization heuristic, Multi-Objective Simulated Annealing (see C.52).

- **Temporal controllability** – Controllability guarantees the ability to execute a process for all possible task durations while satisfying the temporal constraints defined on and among them. This topic finds a natural application in the representation and management of clinical processes. The NestFlow language was enriched with constructs for defining temporal constraints, and a procedure was defined to transform a model into a temporal constraint network for the automatic verification of various levels of controllability (see J.36, C.49).
- **Geo-processing workflows** – Management of processes for the analysis and processing of spatial data carried out through the collaboration of human agents (domain experts) and distributed IT tools, using technologies such as workflow systems. With respect to this aspect, the applicability was studied both of workflow tools developed in the context of “business processes” for the management of collaborative processes, and of workflow tools developed in the scientific context for the documentation and automation of scientific processes (see C.53).
- **Ethics and fairness in business processes** – Process execution typically involves different groups of users who are asked to perform a series of operations collaboratively to achieve a common goal. In order to perform these operations, it is often necessary to access data that may also be sensitive in nature, raising ethical and fairness-related issues. For this reason, techniques were studied for the combined analysis of activities and accessed data in order to guarantee ethical properties during execution (see C.9)

MACHINE AND DEEP LEARNING IN PREDICTION SYSTEMS

Alongside the growing availability of data and the spread of Big Data systems, increasingly sophisticated tools for analyzing and understanding such data have been developed in recent years. The main methodologies investigated concern heuristic techniques and, more recently, machine learning and deep learning techniques. The main application fields considered are recommendation systems and predictive systems in spatio-temporal and environmental contexts.

- **Spatial deep and machine learning** – Application of machine learning and deep learning techniques for the definition of advanced cost models for spatial operations such as indexing, spatial join, and range queries. The study covered both more classical techniques such as Decision Trees and Random Forests, based on the preliminary extraction of features from spatial data, and more advanced techniques such as the use of Convolutional Neural Networks (CNNs) and the definition of the innovative concept of Spatial Embedding (see J.12, J.14, J.20, C.1, C.12, C.19, C.20, C.23, C.24, B.1).
- **Context-aware recommendation systems** – Definition of recommendation systems based on the analysis of previously collected historical information, such as user preferences and past behaviors, and on a set of dynamic pieces of information that define the analysis context, such as space and time. Both the production of single recommendations and sequences of recommendations were considered, as well as the production of recommendations for individual users or groups of users. Extending single recommendations to recommendation sequences greatly increases the computational complexity of the problem. At the same time, extending recommendations to groups of users requires combining the preferences of individuals in the fairest possible way, in order to maximize not only the satisfaction of the group as a whole but also that of its members. For the definition of these recommendation systems, both heuristic techniques for exploring the solution space, such as MOSA (Multi-objective simulated annealing), and techniques based on machine learning and deep learning models were applied (see J.4, J.3, J.11, J.17, J.19, J.26, C.17, C.18, C.21, C.25, C.30, C.33, C.36).
- **Collection and analysis of User Generated Content** – The definition of predictive techniques based on machine learning and deep learning requires the availability of large amounts of historical data. In various application domains, such as tourism, these data are typically collected in the form of User Generated Content (UGC), freely and voluntarily shared by users during their online activities. UGC requires specific acquisition, storage, and processing techniques in order to guarantee properties such as the quality and consistency of the collected information (see J.15, C.5, C.11, C.13).
- **Management and analysis of spatio-temporal information from sensors in the smart agrifood domain** – The modeling, management, and analysis of data from sensors and agricultural rovers make it possible to build predictive models of phenomena of interest, such as climate variables (e.g., temperature, humidity) or the possible development of diseases in biological organisms. In this context, the most recent machine learning and deep learning techniques can be combined with classical mechanistic models in order to build a digital twin of biological organisms, whether plants or animals, useful for predictive purposes and for the development of decision-support systems (see J.5, J.7, J.8, C.16, C.3 C.7, C.8, C.15, C.14).

BLOCKCHAIN AND SMART CONTRACTS

Blockchain technology, developed starting in 2009 with the launch of the Bitcoin protocol, has now attracted considerable interest from both the scientific community and industry in general. The applicability and potential offered by this technology are still the subject of study and research. The main areas of interest currently under investigation can be summarized as follows:

- **Collaborative inter-organizational processes** – Study and development of tools based on blockchain technology and smart contracts to support collaborative inter-organizational processes. These new emerging technologies enable the creation of new decentralized organizational forms, posing new challenges and opportunities also from a scientific and technological perspective (see J.2, C.29, C.31, C.32).
- **Languages and verification of smart contracts** – Current tools for implementing smart contracts based on blockchain technology are often inadequate for encoding complex and structured interactions. The spread of blockchain technology requires the study and development of new languages for defining contracts and of the related automatic analysis techniques (see J.16,

C.22).

- **Smart contracts and traceability** – Study and development of decentralized applications that interact with smart contracts in order to guarantee the traceability, immutability, and authenticity of information stored on-chain and off-chain. Specifically, solutions such as the use of the Interplanetary File System (IPFS) combined with cryptographic techniques or Zero Knowledge Proof (ZKP) techniques can be considered and effectively applied for this purpose, also with reference to compliance with data-protection regulations such as the GDPR (see J.1 J.6, J.13, C.2, C.10, C.5).
- **Smart contracts and scalability** – Solutions referred to as Layer 2 have been proposed in recent years in order to overcome the main limitations of the Ethereum blockchain with respect to cost and scalability issues. Such solutions must, on the one hand, increase the number of transactions processed per unit of time and reduce operating costs and, on the other hand, maintain the same levels of security as the original blockchains, raising interesting research questions concerning both aspects (see J.9, C.6).

Scientific Publications

For all publications listed in this section, the contribution of each author is to be considered equal. For each publication, where available, the Scopus ID (Scopus EID) and/or the Web of Science ID (WOS) has been reported.

PH.D. THESIS

- Sara Migliorini. *Supporting Distributed Geo-Processing: A Framework for Managing Multi-Accuracy Spatial Data*. PhD thesis, University of Verona, 2012. URL https://iris.univr.it/retrieve/handle/11562/397936/5358/phd_thesis_migliorini_final.pdf

PEER-REVIEWED INTERNATIONAL JOURNALS

- J.1 Muhammad Bin Saif, Sara Migliorini, and Fausto Spoto. A smart contract architecture using hierarchical factory pattern and multirole access control. *Journal of Network and Systems Management*, 34(3):84, 2026. doi: 10.1007/s10922-026-10065-2. Scopus EID: 2-s2.0-105037756020, WOS:001756816300001
- J.2 Sara Migliorini, Mauro Gambini, Veronica Paternolli, and Mila Dalla Preda. Modeling incomplete procedural contracts with blockchain-based enforceable business processes. *IEEE Access*, 14:46968–46989, 2026. doi: 10.1109/ACCESS.2026.3677629. Scopus EID: 2-s2.0-105034429584
- J.3 Anna Dalla Vecchia, Simone Mattioli, Sara Migliorini, and Elisa Quintarelli. Understanding and predicting tourist behavior through large language models. *Big Data and Cognitive Computing*, 10(4), 2026. ISSN 2504-2289. doi: 10.3390/bdcc10040117. Scopus EID: 2-s2.0-105038080103
- J.4 Anna Dalla Vecchia, Sara Migliorini, Elisa Quintarelli, and Kostas Stefanidis. Multi-sided fairness in sequential task assignment. *Information Systems*, 139:102700, 2026. ISSN 0306-4379. doi: <https://doi.org/10.1016/j.is.2026.102700>. Scopus EID: 2-s2.0-105030335157
- J.5 Ashraf Sharifi, Sara Migliorini, and Davide Quaglia. Optimizing trajectories for rechargeable agricultural robots in greenhouse climatic sensing using deep reinforcement learning with proximal policy optimization algorithm. *Future Internet*, 17(7), 2025. ISSN 1999-5903. doi: 10.3390/fi17070296. Scopus EID: 2-s2.0-105011620653, WOS: 001536137500001
- J.6 Sara Migliorini, Mauro Gambini, and Alberto Belussi. A blockchain-based platform for ensuring provenance and traceability of donations for cultural heritage. *Blockchain: Research and Applications*, 6(3):100278, 2025. ISSN 2096-7209. doi: 10.1016/j.bcr.2025.100278. Scopus EID: 2-s2.0-105013180175
- J.7 Claudio Tomazzoli, Davide Quaglia, and Sara Migliorini. Planning the greenhouse climatic mapping using an agricultural robot and recurrent-neural-network-based virtual sensors. *IEEE Transactions on AgriFood Electronics*, 2(2):617–626, 2024c. doi: 10.1109/TAFE.2024.3460970
- J.8 Claudio Tomazzoli, Elia Brentarolli, Davide Quaglia, and Sara Migliorini. Estimating greenhouse climate through context-aware recurrent neural networks over an embedded system. *IEEE Transactions on AgriFood Electronics*, 2(2):554–562, 2024a. doi: 10.1109/TAFE.2024.3441470
- J.9 Muhammad Bin Saif, Sara Migliorini, and Fausto Spoto. A survey on data availability in layer 2 blockchain rollups: Open challenges and future improvements. *Future Internet*, 16(9), 2024b. ISSN 1999-5903. doi: 10.3390/fi16090315. Scopus EID: 2-s2.0-85205270745, WOS: 001323065800001
- J.10 Sara Migliorini, Anna Dalla Vecchia, Alberto Belussi, and Elisa Quintarelli. ARTEMIS: a Context-Aware Recommendation System with Crowding Forecaster for the Touristic Domain. *Information Systems Frontiers*, Jul 2024. ISSN 1572-9419. doi: 10.1007/s10796-024-10512-y. URL <https://doi.org/10.1007/s10796-024-10512-y>. Scopus EID: 2-s2.0-85198912624, WOS: 001271485400002
- J.11 Anna Dalla Vecchia, Sara Migliorini, Elisa Quintarelli, Mauro Gambini, and Alberto Belussi. Promoting sustainable tourism by recommending sequences of attractions with deep reinforcement learning. *Information Technology & Tourism*, Apr 2024. ISSN 1943-4294. doi: 10.1007/s40558-024-00288-x. URL <https://doi.org/10.1007/s40558-024-00288-x>. Scopus EID: 2-s2.0-85191182998, WOS: 001207627900001

- J.12 Alberto Belussi, Sara Migliorini, and Ahmed Eldawy. A generic machine learning model for spatial query optimization based on spatial embeddings. *ACM Trans. Spatial Algorithms Syst.*, 10(4):36, 2024b. ISSN 2374-0353. doi: 10.1145/3657633. URL <https://doi.org/10.1145/3657633>. Scopus EID: 2-s2.0-85207916358, WOS: 001366258200004
- J.13 Muhammad Bin Saif, Sara Migliorini, and Fausto Spoto. Efficient and Secure Distributed Data Storage and Retrieval Using Interplanetary File System and Blockchain. *Future Internet*, 16(3):98, Mar 2024. ISSN 1999-5903. doi: 10.3390/fi16030098. URL <https://doi.org/10.3390/fi16030098>. Scopus EID: 2-s2.0-85188799751, WOS: 001191534900001
- J.14 Tin Vu, Alberto Belussi, Sara Migliorini, and Ahmed Eldawy. A learning-based framework for spatial join processing: estimation, optimization and tuning. *The VLDB Journal*, Feb 2024. ISSN 0949-877X. doi: 10.1007/s00778-024-00836-1. URL <https://doi.org/10.1007/s00778-024-00836-1>. Scopus ID: 2-s2.0-85185100009, WOS: 001160725100001
- J.15 Sara Migliorini, Mauro Gambini, Elisa Quintarelli, and Alberto Belussi. Tracking social provenance in chains of retweets. *Knowledge and Information Systems*, 65(10):3967–3994, 2023. ISSN 0219-3116. doi: 10.1007/s10115-023-01878-7. Scopus EID: 2-s2.0-85158920338, WOS: 000984657700002
- J.16 Fausto Spoto, Sara Migliorini, Mauro Gambini, and Andrea Benini. On the use of generic types for smart contracts. *Cluster Computing*, 26(4):2099–2113, 2022. ISSN 1386-7857. doi: 10.1007/s10586-022-03688-y. Scopus EID: e2-s2.0-85136825252, WOS: 000837975400001
- J.17 Sara Migliorini, Elisa Quintarelli, Mauro Gambini, Alberto Belussi, and Damiano Carra. Sequence recommendations for groups: A dynamic approach to balance preferences. *Information Systems*, 108:102023, 2022b. ISSN 0306-4379. doi: 10.1016/j.is.2022.102023. Scopus EID: 2-s2.0-85126635481, WOS: 000790505800001
- J.18 Sara Migliorini, Elisa Quintarelli, and Alberto Belussi. Tracking data provenance of archaeological temporal information in presence of uncertainty. *Journal on Computing and Cultural Heritage*, 15(2), 2022a. ISSN 1556-4673. doi: 10.1145/3480956. Scopus EID: 2-s2.0-85133670420, WOS: 000822985500012
- J.19 Sara Migliorini, Alberto Belussi, Elisa Quintarelli, and Damiano Carra. CoPart: a context-based partitioning technique for big data. *Journal of Big Data*, 8(1):21:1–21:28, 2021. ISSN 2196-1115. doi: 10.1186/s40537-021-00410-4. Scopus EID: 2-s2.0-85099581337, WOS: 000612233500001
- J.20 Alberto Belussi, Sara Migliorini, Tin Vu, and Ahmed Eldawy. Using Deep Learning for Big Spatial Data Partitioning. *ACM Transactions on Spatial Algorithms and Systems (TSAS)*, 7(1), 2020d. ISSN 2374-0353. doi: 10.1145/3402126. Scopus EID: 2-s2.0-85091328311, WOS: 000606821300003
- J.21 Alberto Belussi, Sara Migliorini, and Ahmed Eldawy. Cost estimation of spatial join in SpatialHadoop. *GeoInformatica*, 24(4): 1021–1059, 2020a. ISSN 1384-6175. doi: 10.1007/s10707-020-00414-x. Scopus EID: 2-s2.0-85087569574, WOS: 000545289700001
- J.22 Alberto Belussi and Sara Migliorini. Skewness-based Partitioning in SpatialHadoop. *ISPRS International Journal of Geo-Information*, 9(4):201:1 – 201:19, 2020. ISSN 22209964. doi: 10.3390/ijgi9040201. Scopus EID: 2-s2.0-85082814294, WOS: 000539535700016
- J.23 Pietro Michiardi, Damiano Carra, and Sara Migliorini. Cache-based Multi-query Optimization for Data-intensive Scalable Computing Frameworks. *Information Systems Frontiers*, 2020. doi: 10.1007/s10796-020-09995-2. Scopus EID: 2-s2.0-85081633213, WOS: 000560990000002
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