GERARDO CANFORA



PERSONAL INFORMATION

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BIBLIOMETRIC PROFILE

Google Scholar
Citations: 20.561
h-index: 79

Scopus
Citations: 10.649
h-index: 56

EXECUTIVE PROFILE

Gerardo Canfora is Full Professor of Software Engineering at the University of Sannio, Italy, and President of the Gruppo di Ingegneria Informatica (GII), the Italian scientific association coordinating research and higher education activities in Computer Engineering and Information Engineering.

Internationally recognized for his contributions to Software Engineering, Software Evolution and Maintenance, Empirical Software Engineering, Artificial Intelligence for Software Engineering, Software Security, and Service-Oriented Systems, he has authored more than 300 scientific publications in leading international journals and conferences.

Professor Canfora served as Rector of the University of Sannio from 2019 to 2025, leading the institution through a period of significant growth in research performance, internationalization, digital transformation, and stakeholder engagement. He has held numerous leadership positions in academia, research governance, technology transfer, and innovation ecosystems at both regional and national levels.

His career combines internationally recognized scientific achievements, extensive experience in higher education governance, and long-standing leadership in research, innovation, and technology transfer ecosystems. He has consistently promoted collaboration among universities, industry, public administrations, and civil society to foster sustainable innovation and regional development.

According to the Stanford University–Elsevier ranking, he has been consistently included among the world's Top 2% Scientists for several consecutive years.
https://elsevier.digitalcommonsdata.com/datasets/btchxktzyw/9

Sommario in Italiano

Gerardo Canfora è professore ordinario di Ingegneria del software presso l'Università degli Studi del Sannio ed è presidente del Gruppo di Ingegneria Informatica (GII), l'associazione scientifica italiana che coordina le attività di ricerca e formazione universitaria nell'area dell'Ingegneria Informatica e dell'Informazione.

Riconosciuto a livello internazionale per i suoi contributi all'Ingegneria del software, è autore di oltre 300 pubblicazioni scientifiche apparse su importanti riviste e negli atti di conferenze internazionali. Compare da alcuni anni nella lista del 2% dei migliori ricercatori a livello mondiale stilata da Stanford University https://elsevier.digitalcommonsdata.com/datasets/btchxktzyw/9

È ufficiale dell'Ordine al Merito della Repubblica Italiana.

Posizioni attuali

Dal 2001 · Professore ordinario di Ingegneria del software, Dipartimento di Ingegneria, Università degli Studi del Sannio.

Da gennaio 2026 · Presidente del Gruppo di Ingegneria Informatica (GII). Associazione scientifica nazionale che coordina e promuove la ricerca e la formazione universitaria nell'Ingegneria Informatica e dell'Informazione presso le università e gli enti di ricerca italiani. https://www.gii.it/

Dal 2025 · Presidente di SHerIL – Samnium Heritage Innovation Lab. Centro multidisciplinare di ricerca e alta formazione istituito presso l'Università degli Studi del Sannio. SHerIL promuove l'innovazione e il trasferimento tecnologico nei settori del patrimonio culturale, della sostenibilità, delle tecnologie digitali e dell'integrazione tra discipline umanistiche e STEM. https://www.unisannio.it/it/sito-dipartimentale/sheril

Dal 2022 · Presidente della Fondazione ICT Campus – ITS Academy. Istituzione di formazione tecnica superiore specializzata nelle tecnologie dell'informazione e della comunicazione. La Fondazione riunisce università, scuole, imprese, associazioni industriali, centri di competenza, poli tecnologici ed enti locali per rafforzare la formazione tecnica avanzata e gli ecosistemi dell'innovazione. https://its-ictcampus.com/

Da giugno 2025 · Componente del Consiglio di amministrazione del Consorzio GARR, rete nazionale italiana ad altissima velocità per la ricerca e l'istruzione. https://www.garr.it/

Da febbraio 2020 · Componente del Consiglio di amministrazione di MedITech – Competence Center per l'Industria 4.0. Centro di competenza nazionale che sostiene iniziative di innovazione, trasferimento tecnologico e trasformazione digitale attraverso la collaborazione tra università, centri di ricerca e imprese. https://meditech4.com/

Precedenti incarichi di responsabilità

2019–2025 · Rettore dell'Università degli Studi del Sannio.

2017–2019 · Vicepresidente del Gruppo di Ingegneria Informatica.

2009–2019 · Delegato del rettore per i progetti strategici e la ricerca scientifica, Università degli Studi del Sannio.

2016–2019 · Componente del Consiglio di amministrazione dell'Università degli Studi del Sannio.

2005–2011; 2014–2020 · Componente del Consiglio di amministrazione di CeR-ICT – Centro Regionale di Competenza sull'ICT. https://www.cerict.it

2009–2015 · Componente del Consiglio direttivo del CINI – Consorzio Interuniversitario Nazionale per l'Informatica. https://www.consorzio-cini.it

2021–2024 · Componente del Comitato tecnico di indirizzo di Repubblica Digitale, iniziativa strategica nazionale coordinata dalla Presidenza del Consiglio dei ministri per promuovere le competenze digitali, l'inclusione digitale e le tecnologie emergenti. https://repubblicadigitale.gov.it

2012–2017 · Componente del Consiglio generale del Consorzio ASI Benevento, Consorzio per l'Area di Sviluppo Industriale della provincia di Benevento. https://www.asibn.it/it/

2012–2015 · Componente del Consiglio di amministrazione dell'ICT-SUD Competence Center. http://www.cc-ict-sud.it/

2001–2007 · Direttore scientifico di RCOST – Research Centre on Software Technology, centro di eccellenza istituito sotto l'egida del Ministero italiano dell'Università e della Ricerca scientifica.

CURRENT POSITIONS

Since 2001 - Full Professor of Software Engineering, University of Sannio, Department of Engineering.

Since January 2026 - President, Gruppo di Ingegneria Informatica (GII)
National scientific association coordinating and promoting research and higher education activities in Computer Engineering and Information Engineering across Italian universities and research institutions - https://www.gii.it/

Since 2025 - President, SHerIL – Samnium Heritage Innovation Lab
Multidisciplinary research and advanced education centre established at the University of Sannio. SHerIL promotes innovation and technology transfer in cultural heritage, sustainability, digital technologies, and humanities-STEM integration - https://www.unisannio.it/it/sito-dipartimentale/sheril

Since 2022 - President, ICT Campus Foundation – ITS Academy
Higher technical education institution focused on Information and Communication Technologies. The Foundation brings together universities, schools, companies, industrial associations, competence centres, technology hubs and local authorities to strengthen advanced technical education and innovation ecosystems - https://its-ictcampus.com/

Since June 2025 - Member of the Board of Directors, GARR Consortium
Italy's national ultra-high-speed network for research and education - https://www.garr.it/

Since February 2020 - Member of the Board of Directors, MedITech – Competence Center for Industry 4.0
National competence centre supporting innovation, technology transfer, and digital transformation initiatives through collaboration among universities, research centres and companies - https://meditech4.com/

PREVIOUS LEADERSHIP POSITIONS

Rector, University of Sannio (2019–2025)
Chief executive and legal representative of the University, responsible for strategic planning, academic governance, research development, internationalization, stakeholder engagement and institutional relations.

Vice President, Gruppo di Ingegneria Informatica (2017–2019)

Rector's Delegate for Strategic Projects and Scientific Research, University of Sannio (2009–2019)

Member of the Board of Directors, University of Sannio (2016–2019)

Member of the Board of Directors, CeR-ICT – Regional Competence Center on ICT (2005–2011; 2014–2020) - https://www.cerict.it

Member of the Executive Board, CINI – National Interuniversity Consortium for Informatics (2009–2015) - https://www.consorzio-cini.it

Member of the Technical Steering Committee, Repubblica Digitale (2021–2024)
National strategic initiative coordinated by the Presidency of the Council of Ministers to promote digital skills, digital inclusion and emerging technologies - https://repubblicadigitale.gov.it

Member of the General Council of the ASI Benevento Consortium, the Industrial Development Area Consortium of the Province of Benevento (2012-2017) - https://www.asibn.it/it/

Member of the Board of Directors of ICT-SUD Competence Center (2012-2015) - http://www.cc-ict-sud.it/

Scientific director, RCOST – Research Centre on Software Technology (2001–2007)
Centre of Excellence established under the auspices of the Italian Ministry of University and Scientific Research.

ACADEMIC CAREER

Full Professor of Software Engineering, University of Sannio (2001–present)

Associate Professor, University of Sannio (1998–2001)

Assistant Professor, University of Salerno / University of Sannio (1993–1998)

Visiting Researcher, Durham University, United Kingdom (1992–1993)

Researcher, National Research Council of Italy (CNR) (1990–1992)

RESEARCH ACTIVITY

Professor Canfora's research has focused on: Software Engineering, Software Evolution and Maintenance, Empirical Software Engineering, Artificial Intelligence for Software Engineering, Software Security, Service-Oriented Systems, Software Quality Assessment, Mining Software Repositories, Data Analytics for Software Systems, Software Process Improvement.

He has authored more than 300 peer-reviewed scientific publications in leading international journals and conferences. A comprehensive and continuously updated bibliography is available through his DBLP Computer Science Bibliography profile.
https://dblp.org/pid/63/4434.html

His scientific production has contributed significantly to the advancement of methods, tools, and empirical approaches for understanding, maintaining, evolving, and securing complex software systems.

Throughout his career he has coordinated or participated in numerous national and international research projects, often acting as scientific coordinator, principal investigator, or senior advisor.

His collaborations comprises leading universities and research centres across Europe and North America, including: Durham University (UK), University College London (UK), Concordia University (Canada), Polytechnique Montréal (Canada), Tilburg University (Netherlands), Università della Svizzera Italiana (Switzerland) and many other prominent international institutions.

He has served as evaluator and reviewer for national and international funding agencies, including the Italian Minister MUR, the European Commission and the Swiss National Science Foundation.

He was a member of the ANVUR GEV09 Expert Panel responsible for the first Italian national research assessment exercise (VQR 2004–2010).

TECHNOLOGY TRANSFER, CONSULTING AND IMPACT

Professor Canfora has consistently collaborated with industry and public administrations on applied research, innovation, technology transfer and digital transformation initiatives.

Selected industrial collaborations include: Engineering Ingegneria Informatica, MBDA, IDNAMIC, Rete Ferroviaria Italiana (RFI).

He has provided scientific consulting services to public institutions and governmental organizations, supporting innovation strategies and software acquisition processes.

He has also contributed extensively to executive education and public-sector training activities, including courses delivered for the Italian National School of Administration (SNA) on Software Engineering and Artificial Intelligence adoption in public administrations.

EDITORIAL ACTIVITY

Editor-in-Chief, Journal of Software: Evolution and Process (2011–2018)

Since 2026, associate editor, Soft Computing - A Fusion of Foundations, Methodologies and Applications

Associate editor, IEEE Transactions on Software Engineering (2000–2004; 2020-2024)

Editorial Board Member, Journal of Software Maintenance and Evolution (2011-2018

Professor Canfora has also served as reviewer, editor of special issues and scientific advisor for many of the world's leading Software Engineering journals and conferences.

SCIENTIFIC LEADERSHIP

General Chair, Working Conference on Reverse Engineering (WCRE 2006)

General Chair, European Conference on Software Maintenance and Reengineering (CSMR 2003)

Program Chair

- International Conference on Software Engineering (ICSE 2015)
- International Conference on Software Engineering ICSE 2018 – Journal First Track
- International Conference on Software Maintenance (ICSM 2007)
- European Conference on Software Maintenance and Reengineering (CSMR 2004)
- International Conference on Software Maintenance (ICSM 2001)
- International Workshop on Program Comprehension (IWPC 1997)
- Workshop on Emerging Trends in Software Metrics (WETSoM 2010, 2012)

He has served on steering committees, program committees and advisory boards of many of the most prestigious international conferences in Software Engineering.

TEACHING AND DOCTORAL SUPERVISION

Since 2019 Professor Canfora has taught Software Engineering in the Computer Engineering programme at the University of Sannio.

Starting from this academic semester (September 2026), he is also teaching a graduate-level course on Fundamentals of Artificial Intelligence.

Previous teaching assignments include: Programming, Programming Techniques, Embedded Systems, Pervasive Computing, Software Production Technologies and Fundamentals of Computer Science.

Professor Canfora has supervised numerous PhD candidates on topics including: software evolution processes (L. Cerulo); software quality assessment (L. Troiano); natural language processing to support software maintainers (A. Di Sorbo); process modeling and monitoring (L. Aversano); empirical evaluation of agile software development (C.A. Visaggio); flexible architectures for home automation (G. Venturi); reengineering of multi-device interactive applications (G. Di Santo); data privacy in statistical databases (B. Cavallo); automatic speaker recognition (F. Sigona).

From 2001 to 2007, he served as Director of the University Master’s Program in Software Technologies at the University of Sannio, where he also taught the module “Software Life Cycles and Processes.”

Since 2021, he has been a member of the PhD Board of the Doctoral Program in Technologies and Innovation in Medicine at the University of Molise, an interdisciplinary program integrating engineering and medical sciences to train researchers and professionals in translational medicine and healthcare innovation.

He regularly supervises master's students and postdoctoral researchers, contributing to the development of several generations of scholars and professionals in Software Engineering and Computer Science.

HONOURS AND AWARDS

In 2024, he was appointed Officer of the Order of Merit of the Italian Republic (Ufficiale dell'Ordine al Merito della Repubblica Italiana), one of Italy's highest civilian honors, in recognition of his contributions to higher education, scientific research, innovation, and the social, cultural, and economic development of the community.

2025, IEEE Computer Society TCSE Most Influential Paper Award 2025 for the Int. Conf. on Software Maintenance and Evolution 2015 paper: How Can I Improve My App? Classifying User Reviews for Software Maintenance and Evolution.

2015, ACM Special Interest Group on Evolutionary Computation Impact Award 2015 for the Genetic and Evolutionary Computation Conference 2005 paper with the highest impact: An Approach for QoS-aware Service Composition based on Genetic Algorithms.

2024 and 2014, IEEE/ACM International Conference on Program Comprehension Distinguished Paper Award

2010, IEEE International Conference on Software Maintenance Distinguished Paper Award

2007, Mining Software Repositories Best Paper Award

2023, Distinguished Alumnus Recognition, University of Naples Federico II
Conferred by the University of Naples Federico II in recognition of distinguished achievements in scientific research, academic leadership, and contributions to innovation and higher education.

2022, Rotary Club SARNO Award for Culture and Science
Awarded for promoting the integration of scientific research, higher education, and industrial development through sustained contributions to knowledge transfer and innovation.

2003, ANASSILAOS Award for Scientific Research (2003)
Prestigious Italian cultural award recognizing distinguished achievements in scientific research and academic scholarship.

Annex A - 10 RECENT SELECTED PUBLICATIONS

Selected from more than 300 scientific publications - https://dblp.uni-trier.de/pid/63/4434.html

Federica Pepe, Vittoria Nardone, Antonio Mastropaolo, Gerardo Canfora, Gabriele Bavota, Massimiliano Di Penta: Datasets, bias, licenses, and terms of use: A large and longitudinal study on the documentation of hugging face machine learning models. Empir. Softw. Eng. 31(4): 95 (2026)

Giulio Antoniol, Gerardo Canfora, Gerardo Casazza, Andrea De Lucia, Ettore Merlo: Recovering Traceability Links Between Code and Documentation: A Retrospective. IEEE Trans. Software Eng. 51(3): 825-832 (2025)

Gerardo Canfora, Francesco Mercaldo, Antonella Santone: A Novel Classification Technique based on Formal Methods. ACM Trans. Knowl. Discov. Data 17(8): 113:1-113:30 (2023)

Fiorella Zampetti, Damian A. Tamburri, Sebastiano Panichella, Annibale Panichella, Gerardo Canfora, Massimiliano Di Penta: Continuous Integration and Delivery Practices for Cyber-Physical Systems: An Interview-Based Study. ACM Trans. Softw. Eng. Methodol. 32(3): 73:1-73:44 (2023)

Gerardo Canfora, Andrea Di Sorbo, Sara Forootani, Matias Martinez, Corrado Aaron Visaggio: Patchworking: Exploring the code changes induced by vulnerability fixing activities. Inf. Softw. Technol. 142: 106745 (2022)

Andrea Di Sorbo, Sonia Laudanna, Anna Vacca, Corrado Aaron Visaggio, Gerardo Canfora: Profiling gas consumption in solidity smart contracts. J. Syst. Softw. 186: 111193 (2022)

Rafael Kallis, Andrea Di Sorbo, Gerardo Canfora, Sebastiano Panichella: Predicting issue types on GitHub. Sci. Comput. Program. 205: 102598 (2021)

Andrea Di Sorbo, Sebastiano Panichella, Corrado Aaron Visaggio, Massimiliano Di Penta, Gerardo Canfora, Harald C. Gall: Exploiting Natural Language Structures in Software Informal Documentation. IEEE Trans. Software Eng. 47(8): 1587-1604 (2021)

Fiorella Zampetti, Carmine Vassallo, Sebastiano Panichella, Gerardo Canfora, Harald C. Gall, Massimiliano Di Penta: An empirical characterization of bad practices in continuous integration. Empir. Softw. Eng. 25(2): 1095-1135 (2020)

Gerardo Canfora, Fabio Martinelli, Francesco Mercaldo, Vittoria Nardone, Antonella Santone, Corrado Aaron Visaggio: LEILA: Formal Tool for Identifying Mobile Malicious Behaviour. IEEE Trans. Software Eng. 45(12): 1230-1252 (2019)

ANNEX B - MAJOR RESEARCH PROJECTS

Throughout his career, Professor Canfora has participated in and coordinated numerous research and innovation projects funded by the European Commission, the Italian Ministry of University and Research (MUR), regional authorities, and industrial partners. His project activities have addressed Software Engineering, Service-Oriented Computing, Open Source Software, Digital Government, Cybersecurity, Industry 4.0 and Cultural Heritage.

European Research Programmes

Project	Programme	Focus
MARKOS – Market for Open Source Software	FP7	Open-source software quality, security, compliance, and industrial adoption.
QUALIPSO – Quality Platform for Open Source Software *Associated Principal Investigator, University of Sannio Unit*	FP6 Integrated Project	Methods, tools, certification processes, and quality assurance mechanisms for trusted open-source software.
SECSE – Service-Centric System Engineering *Associated Principal Investigator, University of Sannio Unit*	FP6 Integrated Project	Development of methods and tools for engineering complex service-oriented systems and architectures.
SERICS – Security and Rights in Cyberspace	PNRR / NextGenerationEU	Cybersecurity, digital trust, resilience, and disinformation analysis.
NODES – Nord Ovest Digitale e Sostenibile	PNRR / NextGenerationEU	Digital transformation, sustainability, industrial innovation, tourism, and culture.

National Competitive Research Projects

Project	Programme	Focus
SISMA – Solutions for Engineering Microservices Architectures *Associated Principal Investigator, University of Sannio Unit*	PRIN	Engineering methods, architectures, and development practices for microservice-based software systems.
IDEAS – Self-Adaptive Software Systems	PRIN	Frameworks, methods, verification techniques, and runtime infrastructures for self-adaptive software systems.

Digital Government and Open Innovation

Project	Programme	Focus
OpenGOALS – Open Government and Open Data for Living in Campania	POR Campania	Citizen participation, open government, collaborative requirements gathering, and open-data-driven public services.
MOD-UPP Scientific advisory activity supporting digital transformation processes within public administrations	MUR PON – Governance and Institutional Capacity	Development of organizational models and digital innovation strategies to enhance efficiency, governance, and service delivery within the Italian justice system.
MyOpenGov *Principal Investigator*	POR Campania	Citizen-centric digital platforms supporting interoperability among public administration services.
Collective Knowledge *Associated Principal Investigator, University of Sannio Unit*	POR Campania	Integration of Internet of Things, Internet of Services, Semantic Web, and Social Web technologies to support collaborative knowledge creation.

Cultural Heritage and Digital Humanities

Project	Programme	Focus
SHERIL – Samnium Heritage Innovation Lab *Project Coordinator*	Agency for Territorial Cohesion	Creation of territorial innovation ecosystems integrating cultural heritage, sustainability, digital technologies, and advanced education.
CANTICO *Principal Investigator*	MUR PON – Design, Creativity and Made in Italy	Application of advanced digital technologies to creativity, cultural industries, and Made in Italy sectors.
VASARI	MUR PON – Smart Services for Cultural Heritage	Digital services and technologies supporting cultural heritage preservation and valorization.
TEMOTEC	MUR PON	ICT models and technologies for monitoring, preserving, managing, and enhancing cultural heritage assets.
MOGALI – Mobile Gaming for Literacy	POR Campania	Gamification and mobile technologies supporting literacy, reading comprehension, and collaborative learning.

Smart Industry

Project	Programme	Focus
WISCH – Work Into Shaping Campania Home *Associated Principal Investigator, University of Sannio Unit*	Campania Region / MBDA Partnership	Advanced avionics, remotely piloted systems, territorial protection technologies, and decision-support systems.
Borghi 4.0	Campania Region	Connected and autonomous mobility systems for smart territories and sustainable development.
LOCOSP – Logistics of Knowledge in Automotive Product Development *Principal Investigator*	MUR Industrial Research Programme	Service-oriented architectures supporting distributed knowledge management and collaborative engineering in the automotive sector.
RSAMNIUM	PSR Campania	RFID-based traceability systems for agri-food supply chains.
TechFrame *Associated Principal Investigator, University of Sannio Unit*	Ministry of Productive Activities	ICT innovation, entrepreneurship, and technology transfer supporting knowledge-intensive enterprises.

Industrial Research and Technology Transfer

Project	Programme	Focus
SAPI – Automatic System for Visually Impaired Users *Associated Principal Investigator, University of Sannio Unit*	MIUR Industrial Research Programme	Accessibility, human-computer interaction, and inclusive access to digital services.
SADAS *R&D leader*	Industrial Research Collaboration	Innovative database technologies for static-data applications, leading to an industrialized commercial product.