PERSONAL INFORMATION Daniele Ravì

+39 371 760 5146

daniele.ravi@unime.it

https://ai-healthlab.unime.it/

https://orcid.org/0000-0003-0372-2677

Nationality Italian and British

Part I. Academic Profile Summary

Biography

Dr. Daniele Ravì is an Associate Professor of Computer Science at the University of Messina, where he leads the AI-HealthLab research group. He holds the Italian National Scientific Qualification (ASN) as Full Professor in both Computer Science (01/B1) and Information Processing Systems (09/H1). He obtained his BSc, MSc, and PhD in Computer Science from the University of Catania, alongside research training at the University of Surrey, followed by post-doctoral appointments at Imperial College London and UCL. Complementing his academic trajectory, he has held R&D engineering roles in industry, including STMicroelectronics and healthcare technology startups.

His research focuses on generative AI, spatiotemporal modeling, and trustworthy machine learning for clinical healthcare. His group pioneered the use of generative models—including GANs and latent diffusion architectures—to simulate longitudinal neurodegenerative disease trajectories directly from clinical brain MRI. Dr. Ravì has secured over €1.8M in competitive funding as Principal Investigator, headlined by the prestigious MUR FIS3 Consolidator Grant (NeuroTwin, €1.29M) and UKRI commercialisation awards, alongside active participation in EU Horizon 2020 and EPSRC/Wellcome Trust consortia.

An active contributor to the international scientific community, he has authored over 24 peer-reviewed journal papers in premier venues including *IEEE TMI*, *Medical Image Analysis*, and *IEEE JBHI*, holds a granted US patent. He serves as Associate Editor for *Medical Image Analysis*, regularly acts as Area Chair for MICCAI and MIDL, and was the recipient of a Best Paper Award runner-up for the MedIA–MICCAI Special Issue. He finally supervises PhD students, fosters industry collaborations, and teaches AI-related modules.

Selected Academic Indicators

Indicator	Value
Current academic position:	Associate Professor, University of Messina *Equivalent seniority:* ***6 years****, including UK equivalent academic positions (Senior Lecturer/Reader) held from January 2021 to August 2024, pursuant to Ministerial Decree No. 456/2023.*
National qualification	ASN Full Professor in Computer Science (01/B1) Information Processing Systems (09/H1)
Google Scholar	Citations: 5,808; H-index: 23, retrieved on 16 October 2026
Scopus	Citations: 3732; H-index: 20, retrieved on 16 October 2026
Patents	1 US patent
Peer-reviewed articles	24 journal, 19 conference
First-author journal articles	8 of 24
Senior author peer-reviewed articles	2 journal, 6 conference
Q1 journal articles	18 of 24
Largest award as PI	€1.29M (MUR FIS3 Consolidator, 2026-2031)
Completed supervision	1 primary PhD, 2 PhD co-supervisions, 1 EngD supervision, 1 KTP Associate supervision

Indicator	Value
Current supervision	1 postdoctoral researcher, 1 primary PhD and 1 co-supervisor PhD
External PhD reviewer	9
PhD viva panel member	7
BSc/MSc dissertations	6 from University of Hertfordshire, 10 from University of Messina 2 from University of Catania, 1 from University College London
Internships Supervision	20 from University of Messina
Invited talks	7 invited talks, 1 keynote, 1 panel

Principal Research Contributions

Research line	Algorithmic contribution	Independence and leadership	Evidence
Generative and spatiotemporal AI	Generative models for longitudinal 3D data, trajectory forecasting and latent disease-progression modelling	First-author methodological contributions; Principal Investigator of the NeuroTwin project	*Medical Image Analysis*; MICCAI; MUR FIS3 project
Representation learning and computer vision	Spatio-spectral manifold learning and semantic segmentation for hyperspectral image understanding	First-author methodological leadership; coordination of work-package activities	*IEEE Transactions on Medical Imaging*; HELICoiD project
Trustworthy and efficient AI	Semi-supervised learning, physics-informed artefact generation and resource-efficient inference	Methodological leadership with direct relevance to deployable AI systems	*Medical Image Analysis*; clinical-trial pipeline
AI for sensing and digital biomarkers	Efficient deep learning for wearable and mobile sensing	First-author contributions and translation towards real-world systems	*IEEE Journal of Biomedical and Health Informatics* and related outputs

Part II. Academic and Professional Career

Work Experience

ACADEMIC WORK EXPERIENCE

Sep 2024 – Present

Associate Professor

University of Messina, Department of Mathematics and Computer Sciences, Physical Sciences and Earth Sciences (MIFT), IT

- Coordinator of the AI-HealthLab; Principal Investigator of the FIS3 Consolidator project NeuroTwin and of the STEM-TECH project.
- Leading an independent research programme in machine learning and computer vision (generative models, trustworthy AI, efficient learning), with healthcare as the main application.
- Module leader for Programming, Data Mining & Analytics and Big Data Acquisition (BSc Computer Science, MSc Data Science).
- Scientific supervisor of a postdoctoral researcher and a PhD student (Catania), and second supervisor of a PhD student.
- Member of the Orientation, Internship and Teaching Committees and of the Quality Assurance Group of the MSc in Data Science; member of recruitment panels.
- Associate Editor of *Medical Image Analysis* (2025–Present); former Associate Editor of *Pattern Recognition* (2025–2026); Area Chair for MICCAI and MIDL; General Chair of IEEE ICTS4eHealth 2026.

Aug 2023 – Aug 2024

Reader in Artificial Intelligence for Healthcare

MUR Equivalence: Associate Professor as per D.M. 10/05/2023 n.456.

University of Hertfordshire, School of Physics, Engineering and Computer Science, UK

- Leading research projects in AI for healthcare.
- Module leader.
- Supervising PhD/MSc students.
- Contributing to grant writing and research dissemination.
- Guest Editor and Program Committee member.

Jan 2021 – Aug 2023

Senior Lecturer

MUR Equivalence: Associate Professor as per D.M. 10/05/2023 n.456.

University of Hertfordshire, School of Physics, Engineering and Computer Science, UK

- Conducting independent research and clinical translation of outcomes.
- Module leader and lecturer.
- Writing grant proposals.
- Supervising PhD/MSc students.
- Reviewer and Program Committee member.

Jan 2021 – Jan 2026

Honorary Associate Professor

University College London, Department of Computer Science, UK

- Collaborative research in neuroscience and medical imaging.
- Student supervision and mentoring in a world-leading context.

Aug 2017 – Dec 2020

Senior Research Fellow

University College London, Wellcome/EPSRC Centre for Interventional and Surgical Sciences (WEISS) and Centre for Medical Image Computing (CMIC), UK

- Supervising PhD/MSc students.
- Independent research on disease progression modelling and image super-resolution.
- Managing projects; publishing and peer reviewing.

Feb 2014 – Aug 2017

Research Associate

Imperial College London, Hamlyn Centre for Robotic Surgery, UK

- Developing an AI module for tumour margin detection and human activity recognition.
- Leading research on hyperspectral imaging and medical Internet of Things (IoT).

INDUSTRIAL EXPERIENCE

Jan 2021 – Jan 2024

Research and Development Engineer - Part-time Secondment Role

Queen Square Analytics, UK

- Developed AI and machine learning solutions for medical data quality control systems.

May 2013 – Feb 2014

Research and Development Engineer

Visual-Atoms, Surrey, UK

- Developed AI algorithms for content-based image retrieval systems.

Feb 2008 – Nov 2010

Research and Development Engineer

STMicroelectronics, Catania, IT

- Implemented AI/ML algorithms for embedded image artefact removal, such as red-eye correction.

Education and Training

Nov 2010 – Feb 2014 **PhD in Computer Science**
University of Catania, Department of Mathematics and Computer Science, IT
Thesis: “True Scene Understanding: Classification, Semantic Segmentation and Retrieval”
Supervisor: Professor Sebastiano Battiato

Sep 2012 – Feb 2014 **Visiting PhD Student**
University of Surrey, Centre for Vision, Speech and Signal Processing, UK
Supervisor: Professor Miroslaw Bober

Oct 2005 – Nov 2007 **Master’s Degree in Computer Science (110/110 cum laude)**
University of Catania, Department of Mathematics and Computer Science, IT
Thesis: “Algorithms and Techniques for Semantic Classification of Digital Images”

Oct 2002 – Nov 2005 **Bachelor’s Degree in Computer Science (110/110 cum laude)**
University of Catania, Department of Mathematics and Computer Science, IT
Thesis: “Inverse Kinematics Solving in Java 3D”

Sep 1997 – Jul 2002 **Secondary School Diploma**
I.T.I.S. E. Torricelli – S. Agata Militello, IT
Computer Science program, grade 100/100 (A-level equivalent).

OTHER QUALIFICATIONS

- **Jul 2026**: National Academic Qualification (ASN), Full Professor, Information Processing Systems (09/H1), IT
- **Jul 2026**: National Academic Qualification (ASN), Full Professor, Computer Science (01/B1), IT
- **Jul 2026**: Accredited as external PhD referee and eligible thesis supervisor and committee member, Doctoral School, Universidad de Las Palmas de Gran Canaria (ULPGC), ES
- **Dec 2024**: Member, GRIN – Società Italiana di Informatica, IT
- **Sep 2024**: Chartered Engineer (CEng), Institution of Engineering and Technology (IET), UK
- **Nov 2023**: Member of the Institution of Engineering and Technology (MIET), UK
- **Nov 2022**: National Academic Qualification (ASN), Associate Professor, Information Processing Systems (09/H1), IT
- **Aug 2022**: Fellow of the Higher Education Academy (FHEA), UK
- **Mar 2022**: Expert of the Italian Ministry of University and Research (MUR) – REPRISE Register (Ricerca di base)
- **Aug 2021**: Associate Fellow of the Higher Education Academy (AFHEA), UK
- **Nov 2020**: National Academic Qualification (ASN), Associate Professor, Computer Science (01/B1), IT
- **Dec 2008**: Licensed Professional Engineer, Industrial Sector – A, Catania, IT

Part III. Grants, Editorial Roles and Research Recognition

Research Funding and Scientific Leadership (b1)

Period	Project	Funder / call	Role	Total	Competitive
Competitive research grants (Principal Investigator)					

Period	Project	Funder / call	Role	Total	Competitive
2026–2031	*NeuroTwin: AI-Powered Digital Twins for Neurodegeneration Research: Advancing Disease Progression Modelling*	MUR, Fondo Italiano per la Scienza (FIS3 — success rate ≈ 6%), Consolidator Grant. Ref. FIS-2024-02364; CUP J53C25002200001	PI	€1,293,120	Yes
2021–2024	*Commercialising Next-Generation AI Models for Ultra-Efficient Analysis of Neurological Clinical Trials*	UK Research and Innovation (UKRI), UK. — Project Reference: 74984	PI	£225,531	Yes
Competitive innovation, knowledge-transfer and institutional grants					
2025–2027	*STEM-TECH: Innovazione Didattica e Inclusione di Genere Attraverso Tecnologie Avanzate*	MUR, STEM UNIVERSITÀ 2024, IT	PI	€150,000	Yes
2022–2025	*An Automated and Optimised Technical Authoring and Documentation System Powered by AI and NLP*	UKRI Knowledge Transfer Partnership, UK, with Sonovision	Co-PI	£194,743	Yes
2020	*Combining Data-Driven Frameworks and Disease Progression Modelling to Generate High-Resolution Medical Images*	CMIC Platform Fellowship, University College London, UK	PI	Six-month fellowship	No
2018	*Neuro-Oncology Sandpit: Improved Hyperspectral Imaging System for Brain Cancer Detection*	UCL Sandpit Competition, University College London, UK	Co-PI	£65,000	No
Industry-sponsored research funding					
2020–2024	*Virtual and Augmented Reality Interfaces for AI-Enhanced Decision-Making*	Elettronica S.p.A., IT; two sponsored PhD studentships	Co-PI	€120,000	No

Participation in Research Projects

Period	Project	Funder / call	Role
2024–2026	*Smart Management and Assistance System for Healthcare (SMASH)*	Italian Ministry of Enterprises and Made in Italy (MIMIT), Fund for Sustainable Growth — Innovation Agreements	Research-project participant
2024–2026	*Rete eHealth — AI e strumenti ICT orientati alla Diagnostica Digitale (rAIdD)*	Italian Ministry of Health, IT	Research-project participant
2024–2026	*Detection of Deep Fake Media and Life-Long Media Authentication (FF4ALL)*	PNRR — SERICS, IT	Research-project participant
2024–2026	*Security Software Platform (SOP)*	PNRR — SERICS, Spoke 6, IT	Research-project participant
2018–2020	*European Progression of Neurological Disease Initiative (EuroPOND)*	Horizon 2020, European Union	Research-project participant and coordination
2017–2018	*Optical Molecular Imaging for Tissue Diagnosis*	Wellcome/EPSRC, UK; joint University of Edinburgh and UCL project	Research-project participant
2015–2017	*HELICoiD — HypErspectraL Imaging Cancer Detection*	European Union FP7-ICT Programme	Work Package Leader

Period	Project	Funder / call	Role
2015–2017	*Smart Sensing for Surgery*	Engineering and Physical Sciences Research Council (EPSRC), UK	Research-project participant
2014–2015	*Elite Sport Performance Research in Training (ESPRIT)*	Engineering and Physical Sciences Research Council (EPSRC), UK	Research-project participant

Scientific Awards and Bibliometric Recognition

- 2025: Elsevier — MedIA MICCAI 2024 Special Issue Best Paper Award, runner-up
- 2024: Listed among the world's top 2% scientists — Stanford University, USA

Editorial, Chair and Reviewing Roles (b2)

ASSOCIATE EDITOR

- **2025–Present** — Associate Editor, *Medical Image Analysis* (Elsevier, Q1)
- **Aug 2025 – Aug 2026** — Associate Editor, *Pattern Recognition* (Elsevier, Q1)

GUEST EDITOR

- **2025** — Pattern Recognition Letters (Elsevier)
  Special Issue: "Open the Brain: Horizons and Challenges in Brain Image Analysis"
- **2025** — Information (MDPI)
  Special Issues: Emerging Applications of Machine Learning in Healthcare, Industry, and Beyond
- **2024** — Robotics (MDPI), Special Issues: Immersive Teleoperation and AI

PEER-REVIEW ACTIVITIES

Since 2011, peer reviewer for about 50 leading international journals and conferences in artificial intelligence, machine learning, computer vision, medical imaging, biomedical engineering and neuroscience. Selected venues include *Nature Communications*, *Neuron*, *IEEE Transactions on Pattern Analysis and Machine Intelligence*, *IEEE Transactions on Medical Imaging*, *Medical Image Analysis*, *NeuroImage*, *Pattern Recognition*, CVPR, MICCAI and MIDL. This sustained activity contributes to the evaluation of interdisciplinary research spanning methodological AI advances and clinical applications. The complete list is provided in Appendix II.

REVIEWER FOR GRANT APPLICATIONS

- **Feb 2026** — Evaluator for 10 projects, Sicilian Regional Research Projects — Programma Regionale FESR Sicilia 2021/2027, Regione Siciliana, IT
- **Jun 2026** — Appointed External Reviewer for Canada Research Chairs (CRC) Program, Government of Canada (Convergence Portal)
- **2023** — Grant Assessment Committee, Medical Research Future Fund — National Critical Research Infrastructure Initiative (Australian Government's, Department of Health and Aged Care and the Department of Industry, Science and Resources)
- **2020–2022, 2025** — Evaluator, University Research Incentive Plan (interdisciplinary projects), University of Catania
- **2020** — Netherlands Organisation for Scientific Research (NWO), grant applications

CONFERENCE LEADERSHIP AND PROGRAMME COMMITTEE ROLES

- **2026** — General Chair, IEEE ICTS4eHealth (IEEE International Conference on ICT Solutions for eHealth)
- **2026** — Technical Programme Committee Member, IEEE International Symposium on Network Computing and Applications (NCA)
- **2025–2026** — Area Chair, Medical Imaging with Deep Learning (MIDL)
- **2024–2026** — Area Chair, Medical Image Computing and Computer Assisted Intervention Society (MICCAI)
- **2024** — Area Chair, IEEE MetroXRAINE, St Albans, UK
- **2024** — Technical Program Chair, ICAETA — International Conference on Advanced Engineering Technology and Applications
- **2023–2026** — Area Chair, IEEE Engineering in Medicine and Biology Society Conference (EMBC)
- **2021** — Area Chair, IEEE International Conference on Biomedical and Health Informatics (BHI)

ORGANISED WORKSHOPS

- **15/09/2025** — Computer Vision and Generative Models for Medical Imaging, Rome — in conjunction with ICIAP

SPECIAL AND TRACK SESSIONS

- **2025** — Track Session, ACM SAC — Symposium on Applied Computing
  Title: Computational Horizons in Medical Imaging
- **2024** — Special Session, IEEE MetroXRAINE, St Albans, UK
  Title: Artificial Intelligence and Generative Models for Medical Data Simulation — Shaping the Future of Diagnostics and Treatment

Invited Talks, Keynotes and Panels (b3)

ACADEMIC AND RESEARCH EVENTS

- **9 Oct 2026, Convegno Nazionale SIML, Giardini Naxos, IT**: Invited Talk: *Costruire e validare modelli di intelligenza artificiale in sanità*
- **24 Feb 2026, Winter Lab 2026, Catania, IT**: Invited Talk: *Revolutionizing Medical Imaging Using Generative Models*
- **11 Apr 2025, Department of Mathematics and Computer Science, University of Catania, IT**: II Workshop on Generative AI & Computer Vision — Invited Talk: *Generative Models Redefining the Healthcare Landscape*
- **11 Mar 2025, Taormina Workshop on Emerging Challenges and Innovations in ICT in the Era of AI**: UCC — Unified Complex Computing — Invited Talk: *Redefining the Healthcare Landscape Using Generative AI*
- **15–19 Jul 2024, 27th BMVA Computer Vision Summer School**: Invited Talk: *Revolutionising Medical Imaging Using Generative Models*
- **19 Mar 2024, Department of Mathematics and Computer Science, University of Catania, IT**: I Workshop on Generative AI & Computer Vision — Invited Talk: *Unveiling Generative Models Revolutionising Medical Imaging*
- **10 May 2019, UCL–ICL Workshop, University College London, UK**: Invited Talk: *Deep Learning for Health Informatics and Medical Interventions — Degenerative Adversarial NeuroImage Nets*

KEYNOTES

- **22 Apr 2023, IMPROVE Conferences, Prague, Czech Republic**: Keynote: *Challenges and Opportunities of AI in Medical Imaging*

PANELS AND EXPERT DISCUSSIONS

- **12 Jun 2024, University of Hertfordshire, SPECS 2024 Research Conference**: Panellist: *Advancing AI in Health and Social Care*

International Collaboration and Research Networks (b4)

- **International academic collaborations**: Established research collaborations with universities and research institutions in the United Kingdom, Italy, Spain, the Netherlands and the USA, including University College London, Imperial College London, University of East Anglia, the University of Hertfordshire, the University of Catania, the University of Essex, the University of Las Palmas de Gran Canaria, King's College London and other international partners.
- **Research areas**: These collaborations cover artificial intelligence, machine learning, computer vision, medical imaging, neuroimaging, generative models, healthcare technologies, digital health and clinical translation.
- **Academic and clinical networks**: Developed interdisciplinary links with academic, clinical and industrial partners through collaborative research projects, joint publications, doctoral training, postgraduate supervision and research visits.
- **International research infrastructures**: Experience working with internationally established datasets, research consortia and multidisciplinary networks in medical imaging, neuroscience, healthcare AI and computational modelling.
- **European research initiatives**: Research and coordination experience through international initiatives and networks including EuroPOND, HELICoiD, CMIC and WEISS.

Technology Transfer and Commercialisation (b5)

- **Commercialisation (PI):** UKRI project *Commercialising Next-Generation AI Models for Ultra-Efficient Analysis of Neurological Clinical Trials* (2021–2024, £225,531).
- **Knowledge Transfer Partnership (Co-PI):** UKRI KTP with Sonovision, *An Automated and Optimised Technical Authoring and Documentation System Powered by AI and NLP* (2022–2025, £194,743); KTP Associate supervised to completion (1 Sep 2025).
- **Industry-sponsored research (Co-PI):** Elettronica S.p.A., *Virtual and Augmented Reality Interfaces for AI-Enhanced Decision-Making* (2020–2024, about €120,000, two sponsored PhD studentships).
- **Collaboration with industry and institutions:** SMASH (MIMIT, Innovation Agreements), rAIdD (Italian Ministry of Health), FF4ALL and SOP (PNRR–SERICS); EngD in industrial predictive machine health (University of Hertfordshire, completed 4 Aug 2026).
- **Patents:** Inventor on US Patent 8,498,496, "Method and apparatus for filtering red and/or golden eye artifacts" (developed at STMicroelectronics).
- **Software and embedded applications:**
  - **ActiveMiles**: Android app for human activity recognition using a fast AI engine optimised for embedded devices; real-time classification of activities from sensor data.
  - **FoodRec**: Android app for food image recognition using an efficient CNN-based engine, for dietary monitoring.
- **Industrial roles:** R&D engineer at Queen Square Analytics (part-time secondment, 2021–2024; AI/ML for medical data quality-control systems), Visual-Atoms (2013–2014; content-based image retrieval) and STMicroelectronics (2008–2010; embedded image artefact removal).

Part IV. Teaching and Research Supervision

Teaching

Academic years	Course / activity	Programme / institution	Role	Hours
A. Core informatics				
2024–Present	Programming	Bachelor's in Computer Science **University of Messina, IT**	Module Leader	66 h/year
2024–Present	Data Mining Analytics	Bachelor's in Computer Science **University of Messina, IT**	Module Leader	48 h/year

Academic years	Course / activity	Programme / institution	Role	Hours
2021–2024	Digital Computing Principles	Bachelor's in Engineering **University of Hertfordshire, UK**	Module Leader	40 h/year
B. Artificial intelligence, machine learning and data science				
2025–2026	Big Data Analytics and AI in Healthcare	Level-II Master's in *Management e Performance in Sanità* **University of Messina, IT**	Lecturer	4 h/year
2025–2026	Generative AI and Large Language Models	Level-II Master's in Smart Automation and AI for Production Engineering **University of Messina, IT**	Lecturer	16 h/year
2024–Present	Big Data Acquisition	Master's in Data Science **University of Messina, IT**	Module Leader	48 h/year
2021–2024	Machine Learning	Bachelor's in Engineering **University of Hertfordshire, UK**	Module Leader	42 h/year
2021–2024	3D Vision	Bachelor's in Engineering **University of Hertfordshire, UK**	Module Leader	22 h/year
2021–2024	Data Analytics and Artificial Intelligence	Bachelor's in Computer Science **University of Hertfordshire, UK**	Module Leader	10 h/year
C. Informatics service teaching across faculties				
2026–Present	Tools for Health Data Management & Hygiene and Global Health — Bioinformatics	Master's in Medicine and Surgery **University of Messina, IT**	Module Leader	24 h/year
2025–Present	Operating Systems and Networks with Epistemological References	Qualification Training Courses **University of Messina, IT**	Lecturer	12 h/year
2024–2025	Didactic Methodologies of Web Programming with Epistemological References	Qualification Training Courses **University of Messina, IT**	Lecturer	12 h/year
2024–Present	Informatics	School of Specialisation in Internal Medicine **University of Messina, IT**	Module Leader	20 h/year
2018–2020	Computational Photography and Capture	Bachelor's in Computer Science **University College London, UK**	Teaching Assistant	20 h/year
2018–2020	Programming Foundations for Medical Image Analysis	Postgraduate teaching **University College London, UK**	Teaching Assistant	5 h/year
D. Doctoral teaching				
2025–2026	Advanced Medical Imaging and AI	PhD Programme, Department of Mathematics and Computer Science **University of Catania, IT**	Module Leader	12 h
2024–2025	Hammer and Nail: AI in Healthcare	PhD Programme, Department of Mathematics and Computer Science **University of Catania, IT**	Module Leader	12 h
E. Visiting appointments				
2023–2024	Digital Computing Principles	International visiting teaching **Changshu Institute of Technology, China**	Visiting Lecturer	40 h

Academic years	Course / activity	Programme / institution	Role	Hours
Jul–Oct 2022	Teaching and research visit	Department of Mathematics and Computer Science **University of Catania, IT**	Visiting Professor	40 h

Hosting and Supervision

RESEARCHERS HOSTED

Mar–May 2026, AI-HealthLab, University of Messina, IT: Hosted two visiting researchers (1 doctoral student and 1 research staff member) from the National Engineering School of Tunis (ENIT), University of Tunis El Manar, within the HEALTHMED PNRR TNE Mobility Programme. Research focus: embedded AI for healthcare and machine learning at the edge.

SUPERVISION

2026–2029 — Supervisor of Postdoctoral Researcher, MIFT, University of Messina, IT
Project title: Robust Artefact Detection in Brain MRI for Digital Twin-Based Disease Progression Modelling

2026–2029 — PhD Co-Supervisor, Department of Economics, University of Messina, IT
PhD title: Artificial Intelligence and the Economics of Clinical Evidence

2025–2028 — Primary PhD Supervisor, Mathematics and Computer Science, University of Catania, IT
PhD title: Multimodal Generative Models for Neurodegenerative Disease Progression

2024–Present — Supervisor of 10 MSc/BSc theses and 20 internships, University of Messina, IT

2023–2026 (Completed Oct 2026) — Primary PhD Supervisor, University of Catania, IT
PhD title: Data-Driven Neurodegenerative Disease Progression Modelling

2022–2025 (Completed 1 Sep 2025) — KTP Project Supervisor (UKRI/KTP), Sonovision and University of Hertfordshire, UK

2021–2026 (Completed 4 Aug 2026) — EngD Supervisor, University of Hertfordshire, UK
EngD title: A Deep Learning-Based Framework for Industrial Predictive Machine Health

2021–2026 (Completed 30 Jun 2026) — PhD Co-Supervisor, University of Hertfordshire, UK
PhD title: Operational Performance and Perceptual-Cognitive Mechanisms in Immersive Observation of Flying Vehicles

2021–2025 — Supervisor of 2 MSc theses, University of Catania, IT

2021–2024 — Supervisor of 6 MSc/BSc theses, University of Hertfordshire, UK

2019–2020 — Subsidiary Undergraduate Supervisor, University College London, UK; supervised a student nominated for the 2020 Dean's Research Prize

2018–2021 (Completed March 2021) — PhD Co-Supervisor, University College London, UK

Part V. Academic Leadership and Management

Research-Group Leadership

2024–Present

Scientific Coordinator, AI-HealthLab, University of Messina

Since 2023, Daniele Ravì has developed and led an independent research programme focused on generative and spatiotemporal artificial intelligence for longitudinal medical data, trustworthy and privacy-aware generative modelling, and resource-efficient machine learning. Since 2024, he has coordinated the AI-HealthLab at the University of Messina, bringing together research activities, collaborations, and supervised doctoral projects involving researchers based in Messina and Catania. The entries below provide selected evidence of research-group development, scientific supervision, and researcher-led outputs.

2023–2026 **L. Puglisi — Primary PhD Supervisor, University of Catania**
PhD research on data-driven modelling of neurodegenerative disease progression. Selected outcomes:
– First-author article in *Medical Image Analysis* (2025), selected as runner-up for the MedIA–MICCAI 2024 Special Issue Best Paper Award.
– First-author paper at MICCAI 2024, nominated for a Best Paper Award.
– First-author paper *SynthBA*, presented at IEEE MetroXRAINE 2024.
– Co-author of papers published at AAAI 2026 and WACV 2026.

2025–2028 **A. Scardace — Primary PhD Supervisor, University of Catania**
PhD research on trustworthy and privacy-aware generative models for medical imaging. Selected outcome:
– First-author paper on memorisation detection in generative brain-MRI models, published at WACV 2026.

2026–2029 **A. Rondinella — Postdoctoral Research Supervisor, University of Messina**
Postdoctoral research on robust artefact detection in brain MRI for digital-twin-based disease-progression modelling within the NeuroTwin FIS3 project. The appointment commenced in 2026; completed research outputs are therefore not yet reported.

2026–2029 **P. Kasemi — PhD Co-Supervisor, University of Messina**
Interdisciplinary doctoral research in Economics on artificial intelligence and the economics of clinical evidence. The doctoral project commenced in 2026; completed research outputs are therefore not yet reported.

Academic Governance and Institutional Service

2025–Present **Academic Quality Assurance (AQ) Commission and Curriculum Design (SUA-CdS), MSc in Data Science, University of Messina**

Member of the Academic Quality Assurance (AQ) Commission, contributing to the analysis and review of teaching indicators, student progression data, and programme quality. Contributed to the development and review of the programme's educational regulations (*ordinamenti didattici*) and annual quality assurance documentation (*SUA-CdS*), supporting continuous improvement and compliance with national quality assurance and accreditation requirements.

2024–Present **Member of the Student Orientation & Graduation Committees, University of Messina**

Member of the Student Orientation & Graduation Committees. Regularly served on graduation examination commissions (*commissioni di laurea*), while driving curriculum administration and managing internship agreements with external stakeholders.

2024–Present **Chair & Statutory Evaluator for Academic Recruitment, University of Messina**

Served as a chair or member of multiple official university selection committees, including contract professor (*docenze a contratto*), PhD admissions, postdoctoral positions, research contracts (*assegni di ricerca*), and other technical-administrative roles. Conducted rigorous comparative evaluations of candidates and authored official selection reports.

2022–Present **Doctoral Programme Board Member (Collegio Docenti), University of Catania**

Actively involved in doctoral governance, overseeing PhD student progress, coordinating advanced curriculum developments, and serving on doctoral defence and admission panels.

Sep 2026 **Selection Committee Member for Excellence Pathways, Scuola Superiore di Catania**

Evaluated candidates and conducted examinations for admission to the highly competitive Ordinary Courses for the 2026-2027 academic year.

Doctoral Examination and Assessment

EXTERNAL PHD THESIS REVIEWER

- **2025** — University of Catania, IT
  PhD Thesis: *Advanced Deep Learning Techniques for Medical Image Analysis*
- **2024** — University of Catania, IT
  PhD Thesis: *Advanced Artificial Intelligence for 5G Digital Services: Massive IoT*
- **2023** — University of Catania, IT
  PhD Thesis: *Audio Analysis via Deep Learning for Forensics and Investigation Purposes*
- **2022** — University of Catania, IT
  PhD Thesis: *Spatial Understanding and Localisation in Indoor Environments*
- **2020** — University of Catania, IT
  PhD Thesis: *Multimedia Forensics: From Image Manipulation to Deepfake Threats in the Social Media Era*
- **2019** — University of Catania, IT
  PhD Thesis: *Multi-Sensor Data Fusion*
- **2018** — University of Catania, IT
  PhD Thesis: *Egocentric Vision-Based Localisation for Shopping*
- **2015** — University of Las Palmas de Gran Canaria, ES
  PhD Thesis: *Non-Iterative Super-Resolution Algorithms Enabling Efficient Real-Time FPGA Implementation for Resolution Enhancement of Video Sequences*
- **2015** — University of Catania, IT
  PhD Thesis: *First Quantisation Table Detection in Double-Compressed JPEG Images*

PHD VIVA AND DEFENCE PANEL MEMBER

- **2026** — Universidad de Las Palmas de Gran Canaria, ES
  PhD Thesis: *Contributions to Clinical Hyperspectral Colposcopy Systems and Machine Learning-Based Assessment of Cervical Lesions*
- **2026** — University of Copenhagen, DK
  PhD Thesis: *CDWI/FLAIR Mismatch: An Automated, Continuous & Clinically Viable Approach*
- **2025** — University of Technology Sydney, AU
  PhD Thesis: *Towards Robust Clinical Segmentation of Paediatric Brain Tumours in Magnetic Resonance Images Using Weakly-Supervised Deep Neural Networks*
- **2025** — Durham University, UK
  PhD Thesis: *Advancing Representation Learning and Generative Models for Deep Learning-Based Image Inpainting*
- **2023** — University of Hertfordshire, UK
  PhD Thesis: *Impact of Imaging and Distance Perception in VR Immersive Visual Experience*
- **2023** — University of Pisa, IT
  PhD Thesis: *Assessment of Frailty Using a Wrist-Worn Device*
- **2018** — University of Catania, IT
  PhD Thesis: *Food Understanding from Digital Images*

OTHER DOCTORAL ASSESSMENT ACTIVITIES

- **2020** — Thesis committee member, Dementia Research Centre, UCL
  PhD Thesis: Novel diagnostics and monitoring for frontotemporal dementia using app-based cognitive data, eye-tracking data, and smartphone metadata

Part VI. Third Mission: Outreach and Public Engagement

OUTREACH

- **2025–2026** — PCTO Tutor and Supervisor, University of Messina, IT
- **2024–Present** — Student Orientation Programme (*Consapevolmente*), University of Messina, IT
- **2022** — Outreach activities, University of Hertfordshire, UK
- **2021–2024** — Open Days, University of Hertfordshire, UK
- **2019** — WEISS Outreach, University College London, UK
- **2018** — Open Days, University College London, UK
- **2015** — Royal Society Summer Science Exhibition, Imperial College London, UK
- **2014–2016** — Open Days, Imperial College London, UK

PUBLIC ENGAGEMENT

- **8 Oct 2026, Convegno Cooperativa Servizi Sociali, Capo d'Orlando, IT**: Invited Talk: *AI generativa per la modellazione della progressione delle malattie neurodegenerative da MRI cerebrale*
- **12 Dec 2025, DevFest Mediterranean 2025 — Google Developer Groups, Sant'Agata di Militello, Messina, IT**: Invited Talk: *L'IA rivoluziona la medicina: diagnosi precoci e gemelli virtuali*
- **28 Oct 2025, GoAhead — Società Italiana di Farmacia Ospedaliera, Catania, IT**: Invited Talk: *AI-Powered Healthcare*
- **17 May 2025, TEDxCatania, Catania, IT**: Invited Talk: *L'IA rivoluziona la medicina: diagnosi precoci e gemelli digitali*
- **24 May 2023, University of Hertfordshire, HHA Knowledge Exchange Event**: Research Spotlight on Health Big Data — Invited Talk: *How AI and Large Clinical Datasets Are Reshaping Healthcare Infrastructure*

Appendix I. Complete List of Research Outputs

Journal Articles

[1] Maddox, S., Puglisi, L., Darabifard, F., Sami, S., and **Ravì**, D. "Regional patch-based MRI brain age modeling with an interpretable cognitive reserve proxy". In: *Pattern Recognition Letters* 199 (2026), pp. 219–224.

[2] Dell'Acqua, P., Puglisi, L., La Rosa, F., Carnevale, L., **Ravì**, D., and Villari, M. "Weighted Federated Distillation: A knowledge-quality-aware, teacher-less strategy". In: *Future Generation Computer Systems* (2026), p. 108517.

[3] Calabrò, R. S., Calderone, A., **Ravì**, D., Galipò, C., Crupi, M. F., and Quartarone, A. "Hospital-to-Home Neurological Transition Care: A Scoping Review Across Selected Chronic Neurological Disorders". In: *Medical Sciences* 14.4 (2026), p. 445.

[4] Puglisi, L., Alexander, D. C., and **Ravì**, D. "Brain latent progression: Individual-based spatiotemporal disease progression on 3D brain MRIs via latent diffusion". In: *Medical image analysis* (2025), p. 103734.

[5] Litrico, M., Guarnera, F., Giuffrida, M. V., **Ravì**, D., and Battiato, S. "Temporally-aware diffusion model for brain progression modelling with bidirectional temporal regularisation". In: *Computerized Medical Imaging and Graphics* (2025), p. 102688.

[6] Willard, C., Puglisi, L., **Ravì**, D., Dmitrieva, M., Mattiesing, R. M., Barkhof, F., Alexander, D. C., Harlow, D. E., Piani-Meier, D., and Eshaghi, A. "Combined magnetic resonance imaging and serum analysis reveals distinct multiple sclerosis types". In: *Brain* (2025).

[7] **Ravì**, D., Barkhof, F., Alexander, D. C., Puglisi, L., Parker, G. J., and Eshaghi, A. "An efficient semi-supervised quality control system trained using physics-based MRI-artefact generators and adversarial training". In: *Medical Image Analysis* 91 (2024), p. 103033.

[8] **Ravì**, D., Blumberg, S. B., Ingala, S., Barkhof, F., Alexander, D. C., and Oxtoby, N. P. "Degenerative adversarial neuroimage nets for brain scan simulations: Application in ageing and dementia". In: *Medical Image Analysis* 75 (2022), p. 102257.

[9] Mengoudi, K., **Ravì**, D., Yong, K. X., Primativo, S., Pavisic, I., Brotherhood, E., Lu, K., Schott, J. M., Crutch, S. J., and Alexander, D. C. "Augmenting Dementia Cognitive Assessment with Instruction-less Eye-tracking Tests". In: *IEEE Journal of Biomedical and Health Informatics* (2020).

[10] Szczotka, A. B., Shakir, D. I., **Ravì**, D., Clarkson, M. J., Pereira, S. P., and Vercauteren, T. "Learning from irregularly sampled data for endomicroscopy super-resolution: a comparative study of sparse and dense approaches". In: *International journal of computer assisted radiology and surgery* 15.7 (2020), pp. 1167–1175.

[11] Fabelo, H., Ortega, S., Szolna, A., Bulters, D., Piñeiro, J. F., Kabwama, S., J-O'Shanahan, A., Bulstrode, H., Bisshopp, S., Kiran, B. R., **Ravì**, D., Lazcano, R., Madroñal, D., Sosa, C., Espino, C., Marquez, M., Luz Plaza, M. de la, Camacho, R., Carrera, D., Hernández, M., Callicó, G. M., Morera Molina, J., Stanciulescu, B., Yang, G.-Z., Salvador, R., Juárez, E., Sanz, C., and Sarmiento, R. "In-Vivo Hyperspectral Human Brain Image Database for Brain Cancer Detection". In: *IEEE Access* 7 (2019), pp. 39098–39116.

[12] **Ravì**, D., Szczotka, A. B., Pereira, S. P., and Vercauteren, T. "Adversarial training with cycle consistency for unsupervised super-resolution in endomicroscopy". In: *Medical image analysis* 53 (2019), pp. 123–131.

[13] Fabelo, H., Ortega, S., Lazcano, R., Madroñal, D., Callicó, G. M., Juárez, E., Salvador, R., Bulters, D., Bulstrode, H., Szolna, A., Piñeiro, J. F., Sosa, C., O'Shanahan, A. J., Bisshopp, S., Hernández, M., Morera, J., **Ravì**, D., Kiran, B. R., Vega, A., Báez-Quevedo, A., Yang, G.-Z., Stanciulescu, B., and Sarmiento, R. "An intraoperative visualization system using hyperspectral imaging to aid in brain tumor delineation". In: *Sensors* 18.2 (2018), p. 430.

[14] Fabelo, H., Ortega, S., **Ravì**, D., Kiran, B. R., Sosa, C., Bulters, D., Callicó, G. M., Bulstrode, H., Szolna, A., Piñeiro, J. F., Kabwama, S., Madroñal, D., Lazcano, R., J-O'Shanahan, A., Bisshopp, S., Hernández, M., Báez, A., Yang, G.-Z., Stanciulescu, B., Salvador, R., Juárez, E., and Sarmiento, R. "Spatio-spectral classification of hyperspectral images for brain cancer detection during surgical operations". In: *PLOS ONE* 13.3 (2018), e0193721.

[15] **Ravì**, D., Szczotka, A. B., Shakir, D. I., Pereira, S. P., and Vercauteren, T. "Effective deep learning training for single-image super-resolution in endomicroscopy exploiting video-registration-based reconstruction". In: *International Journal of Computer Assisted Radiology and Surgery* (2018), pp. 1–8.

[16] **Ravì**, D., Fabelo, H., Callicó, G. M., and Yang, G.-Z. "Manifold embedding and semantic segmentation for intraoperative guidance with hyperspectral brain imaging". In: *IEEE transactions on medical imaging* 36.9 (2017), pp. 1845–1857.

[17] **Ravì**, D., Bober, M., Farinella, G. M., Guarnera, M., and Battiato, S. "Semantic segmentation of images exploiting DCT based features and random forest". In: *Pattern Recognition* 52 (2016), pp. 260–273.

[18] **Ravì**, D., Wong, C., Lo, B., and Yang, G.-Z. "A deep learning approach to on-node sensor data analytics for mobile or wearable devices". In: *IEEE journal of biomedical and health informatics* 21.1 (2017), pp. 56–64.

[19] **Ravì**, D., Wong, C., Deligianni, F., Berthelot, M., Andreu-Perez, J., Lo, B., and Yang, G.-Z. "Deep learning for health informatics". In: *IEEE journal of biomedical and health informatics* 21.1 (2017), pp. 4–21.

[20] Farinella, G. M., **Ravì**, D., Tomaselli, V., Guarnera, M., and Battiato, S. "Representing scenes for real-time context classification on mobile devices". In: *Pattern Recognition* 48.4 (2015), pp. 1086–1100.

[21] Battiato, S., Farinella, G. M., Puglisi, G., and **Ravì**, D. "Aligning codebooks for near duplicate image detection". In: *Multimedia Tools and Applications* 72.2 (2014), pp. 1483–1506.

[22] Battiato, S., Farinella, G. M., Puglisi, G., and **Ravì**, D. "Saliency-based selection of gradient vector flow paths for content aware image resizing". In: *IEEE Transactions on Image Processing* 23.5 (2014), pp. 2081–2095.

[23] Battiato, S., Farinella, G. M., Guarnera, M., Messina, G., and **Ravì**, D. "Red-eyes removal through cluster-based boosting on gray codes". In: *EURASIP Journal on Image and Video Processing* 2010.1 (2010), p. 909043.

[24] Battiato, S., Farinella, G. M., Gallo, G., and **Ravì**, D. "Exploiting textons distributions on spatial hierarchy for scene classification". In: *EURASIP Journal on Image and Video Processing* 2010.1 (2010), p. 919367.

Conference Papers

[25] Sargood, A., Puglisi, L., Cole, J. H., Oxtoby, N. P., **Ravì**, D., and Alexander, D. C. "CoCoLIT: ControlNet-Conditioned Latent Image Translation for MRI to Amyloid PET Synthesis". In: *Association for the Advancement of Artificial Intelligence (AAAI)*. 2026.

[26] Scardace, A., Puglisi, L., Guarnera, F., Battiato, S., and **Ravì**, D. "A Novel Metric for Detecting Memorization in Generative Models for Brain MRI Synthesis". In: *Winter Conference on Applications of Computer Vision (WACV)*. 2026.

[27] Lonia, G., Bonanno, M., Calabró, R. S., **Ravì**, D., Fazio, M., Villari, M., and Celesti, A. "Analysis on Parameters Influencing Non-Immersive Virtual Reality-Based Tele-Rehabilitation in Parkinson's Disease: an Exploratory Study". In: *2025 IEEE Symposium on Computers and Communications (ISCC)*. IEEE. 2025, pp. 1–6.

[28] McMaster, E., Puglisi, L., Gao, C., Krishnan, A. R., Saunders, A. M., **Ravì**, D., Beason-Held, L. L., Resnick, S. M., Zuo, L., Moyer, D., and Landman, B. A. "A technical assessment of latent diffusion for Alzheimer's disease progression". In: *Medical Imaging 2025: Image Processing*. Vol. 13406. SPIE. 2025, pp. 505–513.

[29] Puglisi, L., Alexander, D. C., and **Ravì**, D. "Enhancing spatiotemporal disease progression models via latent diffusion and prior knowledge". In: *International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI 2024 best-paper nomination)*. Springer Nature Switzerland. 2024, pp. 173–183.

[30] Puglisi, L., Rondinella, A., De Meo, L., Guarnera, F., Battiato, S., and **Ravì**, D. "SynthBA: Reliable Brain Age Estimation Across Multiple MRI Sequences and Resolutions". In: *2024 IEEE International Conference on Metrology for eXtended Reality, Artificial Intelligence and Neural Engineering (MetroXRAINE)*. IEEE. 2024, pp. 559–564.

[31] Litrico, M., Guarnera, F., Giuffrida, M. V., **Ravì**, D., and Battiato, S. "Tadm: Temporally-aware diffusion model for neurodegenerative progression on brain mri". In: *International Conference on Medical Image Computing and Computer-Assisted Intervention*. Springer Nature Switzerland Cham. 2024, pp. 444–453.

[32] Poland, D. J., Puglisi, L., and **Ravì**, D. "Industrial Machines Health Prognosis Using a Transformer-Based Framework". In: *2024 IEEE International Conference on Metrology for eXtended Reality, Artificial Intelligence and Neural Engineering (MetroXRAINE)*. IEEE. 2024, pp. 776–781.

[33] Raciti, R., Rondinella, A., Puglisi, L., Guarnera, F., **Ravì**, D., and Battiato, S. "Efficient Atrophy Mapping: A Single-Step U-Net Approach for Rapid Brain Change Estimation". In: *2024 IEEE International Conference on Metrology for eXtended Reality, Artificial Intelligence and Neural Engineering (MetroXRAINE)*. IEEE. 2024, pp. 553–558.

[34] Trenta, F., Battiato, S., and **Ravì**, D. "An explainable medical imaging framework for modality classifications trained using small datasets". In: *International conference on image analysis and processing*. Springer International Publishing Cham. 2022, pp. 358–367.

[35] **Ravì**, D., Alexander, D. C., and Oxtoby, N. P. "Degenerative adversarial neuroimage nets: generating images that mimic disease progression". In: *International Conference on Medical Image Computing and Computer-Assisted Intervention*. Springer International Publishing Cham. 2019, pp. 164–172.

[36] Zhang, R., **Ravì**, D., Yang, G.-Z., and Lo, B. "A personalized air quality sensing system-a preliminary study on assessing the air quality of London underground stations". In: *2017 IEEE 14th International Conference on Wearable and Implantable Body Sensor Networks (BSN)*. IEEE. 2017, pp. 111–114.

[37] **Ravì**, D., Wong, C., Lo, B., and Yang, G.-Z. "Deep learning for human activity recognition: A resource efficient implementation on low-power devices". In: *2016 IEEE 13th international conference on wearable and implantable body sensor networks (BSN)*. IEEE. 2016, pp. 71–76.

[38] **Ravì**, D., Lo, B., and Yang, G.-z. "Real-Time Food Intake Classification and Energy Expenditure Estimation on a Mobile Device". In: *Body Sensor Network*. 2015.

[39] Battiato, S., Farinella, G. M., Puglisi, G., and **Ravì**, D. "Content-aware image resizing with seam selection based on gradient vector flow". In: *2012 19th IEEE International Conference on Image Processing*. IEEE. 2012, pp. 2117–2120.

[40] Battiato, S., Farinella, G. M., Guarnera, M., Messina, G., and **Ravì**, D. "Red-eyes removal through cluster based Linear Discriminant Analysis". In: *2010 IEEE International Conference on Image Processing*. IEEE. 2010, pp. 2185–2188.

[41] Battiato, S., Farinella, G. M., Guarnera, M., Messina, G., and **Ravì**, D. "Boosting gray codes for red eyes removal". In: *2010 20th International Conference on Pattern Recognition*. IEEE. 2010, pp. 4214–4217.

[42] Battiato, S., Farinella, G. M., Gallo, G., and **Ravì**, D. "Spatial hierarchy of textons distributions for scene classification". In: *International Conference on Multimedia Modeling*. Springer Berlin Heidelberg Berlin, Heidelberg. 2009, pp. 333–343.

[43] Battiato, S., Farinella, G. M., Gallo, G., and **Ravì**, D. "Scene categorization using bag of textons on spatial hierarchy". In: *2008 15th IEEE International Conference on Image Processing*. IEEE. 2008, pp. 2536–2539.

Workshop Papers

[44] Moschetto, A., Puglisi, L., Sargood, A., Dell'Acqua, P., Guarnera, F., Battiato, S., and **Ravì**, D. "Benchmarking GANs, Diffusion Models, and Flow Matching for T1w-to-T2w MRI Translation". In: *Computer Vision and Generative Models for Medical Imaging, in conjunction with ICIAP*. 2025.

[45] **Ravì**, D., Ghavami, N., Alexander, D. C., and Ianus, A. "Current applications and future promises of machine learning in diffusion mri". In: *International Conference on Medical Image Computing and Computer-Assisted Intervention*. Springer International Publishing Cham. 2019, pp. 105–121.

[46] Battiato, S., Farinella, G. M., Guarnera, M., **Ravì**, D., and Tomaselli, V. "Instant scene recognition on mobile platform". In: *European Conference on Computer Vision*. Springer Berlin Heidelberg Berlin, Heidelberg. 2012, pp. 655–658.

[47] Battiato, S., Farinella, G. M., Guarnera, G. C., Meccio, T., Puglisi, G., **Ravì**, D., and Rizzo, R. "Bags of phrases with codebooks alignment for near duplicate image detection". In: *Proceedings of the 2nd ACM workshop on multimedia in forensics, security and intelligence*. 2010, pp. 65–70.

White Papers

[48] Perez, J. A., Deligianni, F., **Ravì**, D., and Yang, G.-Z. "Artificial intelligence and robotics". In: *UK-RAS Network Robotics & Autonomous Systems*. 2018.

Conference Abstracts

[49] Slator, P. J., Blumberg, S. B., Lin, H., Slumbers, O., **Ravì**, D., Zhou, Y., Powell, E., Figini, M., and Alexander, D. C. "Deep Learning Experimental Design for Quantitative Parameter Mapping". In: *International Society for Magnetic Resonance in Medicine*. 2025.

[50] Mengoudi, K., **Ravì**, D., Yong, K. X., Primativo, S., Pavisic, I. M., Brotherhood, E. V., Lu, K., Schott, J. M., Crutch, S. J., and Alexander, D. C. "Augmenting cognitive assessment with instruction-less Eye-tracking tests: A machine learning approach for detecting abnormal oculomotor biomarkers: Mapping dementia: Technological methods to identify and interpret cognitive function". In: *Alzheimer's & Dementia* 16 (2020), e045318.

[51] Kabwama, S., Bulters, D., Bulstrode, H., Fabelo, H., Ortega, S., Callicó, G., Stanciulescu, B., Kiran, R., **Ravì**, D., Szolna, A., et al. "Intra-operative Hyperspectral Imaging for Brain Tumour Detection and Delineation: Current Progress on the HELICOID Project (0018)". In: *International Journal of Surgery* 36 (2016), S140.

Preprints and Manuscripts Under Review

[52] Raciti, R., Puglisi, L., Guarnera, F., **Ravì**, D., and Battiato, S. "Reinforcing the Weakest Links: Modernizing SIENA with Targeted Deep Learning Integration". In: *arXiv preprint arXiv:2603.12951* (2026).

[53] Scardace, A. and **Ravì**, D. "A Quantitative Analysis of Multimodal Biomarkers in Alzheimer's Disease". In: *arXiv e-prints* (2026).

[54] La Rosa, F., Dell'Acqua, P., **Ravì**, D., Fazio, M., and Villari, M. "Agentic and Federated Small Language Models for Resource-Aware Healthcare Workflows at the Edge". In: *Small Language Models for Healthcare: Sustainable, Multilingual, and Edge-AI Applications*. Ed. by Naik, G. and Lakshmi B.S., S. In press. Elsevier, 2026.

[55] Bonanno, M., Calderone, A., Lonia, G., Migale, S., **Ravì**, D., Quartarone, A., Milardi, D., Celesti, A., and Calabrò, R. S. "Artificial Intelligence-Enabled Digital Health Systems for Personalized and Adaptive Exercise Management: A Scoping Review". In: *Digital Health (MDPI)* (2026).

[56] Scardace, A., Guarnera, F., Battiato, S., and **Ravì**, D. "Auditing Patient Privacy in Medical Generative Models: Scalable Memorization Detection with DeepSSIM++". In: *arXiv preprint arXiv:2609.03615* (2026).

[57] Poland, D. J., **Ravì**, D., and Helian, N. "Quantile-Led Feature Extraction for Multi-Horizon Predictive Maintenance in Industrial Manufacturing Systems". In: *arXiv preprint arXiv:2609.07533* (2026).

[58] Blumberg, S. B., **Ravì**, D., Xu, M.-C., Figini, M., Kokkinos, I., and Alexander, D. C. "Deformably-scaled transposed convolution". In: *arXiv preprint arXiv:2210.09446* (2022).

Appendix II. Full Reviewer and Editorial-Service List

REVIEWER FOR JOURNALS

- **2024–2025** — Scientific Reports
- **2024** — NeuroImage
- **2024** — Computers in Biology and Medicine
- **2023–2024** — Computing
- **2021–2026** — Medical Image Analysis
- **2024** — Biomedical Signal Processing and Control
- **2023–2024** — Computer Methods and Programs in Biomedicine
- **2023** — Nature Communications
- **2023** — Artificial Intelligence Review
- **2023** — Open Journal of Photogrammetry and Remote Sensing
- **2023** — IET Image Processing
- **2023** — Frontiers in Aging Neuroscience
- **2023** — Pervasive and Mobile Computing
- **2022–2023** — IEEE Transactions on Pattern Analysis and Machine Intelligence
- **2021** — Frontiers in Psychiatry
- **2021** — Neuron
- **2021–2022** — Journal of Medical Internet Research
- **2019–2021, 2026** — IEEE Transactions on Medical Imaging
- **2017–2019** — Applied Sciences
- **2015–2019** — IEEE Journal of Biomedical and Health Informatics
- **2018** — Sensors
- **2018** — IEEE Transactions on Neural Networks and Learning Systems
- **2012–2014, 2017** — IET Computer Vision
- **2017–2018** — Pattern Recognition
- **2011–2016** — Journal of Electronic Imaging
- **2016** — Expert Systems with Applications
- **2016** — Journal of Imaging
- **2016** — IEEE Transactions on Biomedical Engineering
- **2015** — Computer Vision and Image Understanding
- **2014** — The Computer Journal
- **2011–2014** — IEEE Transactions on Circuits and Systems for Video Technology
- **2011** — Oxford Journals

REVIEWER FOR CONFERENCES

- **2024** — IEEE ICTS4eHealth
- **2024–2025** — IEEE Conference on Telepresence
- **2024** — IEEE Engineering in Medicine and Biology Society (EMBC)
- **2020–2024** — Medical Image Computing and Computer-Assisted Intervention (MICCAI)
- **2022–2024** — IEEE International Conference on Metrology for Extended Reality, Artificial Intelligence and Neural Engineering (MetroXRAINE)
- **2020–2021** — Conference on Computer Vision and Pattern Recognition (CVPR)
- **2020** — Winter Conference on Applications of Computer Vision (WACV)
- **2020–2021** — Medical Imaging with Deep Learning (MIDL)
- **2021** — British Machine Vision Conference (BMVC)
- **2018** — IEEE International Conference on Robotics and Automation (ICRA)
- **2018** — International Conference on Pattern Recognition (ICPR)
- **2018** — Hamlyn Symposium
- **2017** — Assistive Computer Vision and Robotics
- **2016, 2017** — Multimedia Assisted Dietary Management (MADiMa)
- **2017** — IEEE International Conference on Biomedical and Health Informatics (BHI)
- **2013, 2017** — International Conference on Image Analysis and Processing (ICIAP)
- **2014** — Workshop on Assistive Computer Vision and Robotics (ACVR)
- **2013** — International Conference on Computer Vision Theory and Applications (VISAPP)
- **2012** — Information Processing and Management of Uncertainty (IPMU)