

PERSONAL INFORMATION

Daniele Ravi



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Date of birth 20 Nov 1983 | Nationality Italian and British

Short Biography

Dr. Daniele Ravi is an Associate Professor at the University of Messina, where he specializes in medical imaging, image-guided surgery, disease progression modeling, and smart sensing. Dr. Ravi obtained his BSc and MSc in Computer Science, followed by a PhD in Computer Vision from the University of Catania. His academic training was further enriched by a visiting PhD year at the University of Surrey and postdoctoral appointments at Imperial College London and University College London. Beyond academia, he gained valuable industrial experience at STMicroelectronics and two technology startups.

He currently leads the AI-HealthLab research group, which pioneers advanced artificial intelligence methods for healthcare. His team was among the first to develop generative AI models—such as GANs and diffusion models—capable of simulating individual neurodegenerative trajectories directly from clinical brain MRI data. He has secured over £1.8M in research funding from bodies including Innovate UK and the Italian Ministry (FIS3), and has contributed to projects funded by the European Union and the EPSRC/Wellcome Trust focusing on developing and commercializing AI-driven pipelines for healthcare. His leadership has consistently delivered successful research and industrial projects through the coordination of multidisciplinary teams, effective resource management, and strategic stakeholder engagement.

Dr. Ravi is an active contributor to the scientific community, with over 20 journal articles in venues such as IEEE Transactions on Medical Imaging, Medical Image Analysis, and the IEEE Journal of Biomedical and Health Informatics, alongside numerous conference papers (e.g., MICCAI, MIDL, BSN, ICIP) and a patent. He serves as an Area Chair for leading conferences, including MICCAI and MIDL, and as an Associate Editor for Medical Image Analysis and Pattern Recognition. He also supervises PhD students, fosters industry collaborations, and teaches AI-related modules. His research has been nominated for a Best Paper Award at MICCAI and was a runner-up for the prestigious MedIA–MICCAI special issue.

Work Experience

ACADEMIC WORK EXPERIENCE

Sep 2024 — Present

Associate Professor

University of Messina, Department of Mathematics and Computer Science, IT

- Leading research in medical imaging and AI for healthcare.
- Building cross-disciplinary collaborations.
- Module leader and lecturer in AI and data science.
- Supervising PhD and MSc students.
- Serving on recruitment, orientation, and internship committees.
- Contributing to grant writing and research dissemination.
- Publishing and reviewing research papers.
- Associate Editor and Program Committee member.

Jan 2021 — Jan 2026

Honorary Associate Professor

University College London, Department of Computer Science, UK

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

Aug 2023 — Sep 2024 Reader in Artificial Intelligence for Healthcare

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.
- Publishing and reviewing research papers.
- Guest Editor and Program Committee member.

Jan 2021 — Aug 2023 Senior Lecturer

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.

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 WORK
EXPERIENCE****Jan 2021 — Jan 2024 Research and Development Engineer**

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, 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, Engineering (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) — REPRIZE 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

Grants, Research Projects and Awards

GRANTS

- 2025 — 2030 **Ministry of University and Research (MUR) — Fondo Italiano per la Scienza (FIS3) - Consolidator, IT**
Project: AI-Powered Digital Twins for Neurodegeneration Research: Advancing Disease Progression Modeling
Role: Principal Investigator
Reference: FIS-2024-02364 (CUP: J53C25002200001)
Award: €1,293,120
- 2025 — 2027 **Ministero dell'Università e della Ricerca (MUR) - STEM UNIVERSITÀ 2024, IT**
Project: STEM-TECH: Innovazione Didattica e Inclusione di Genere Attraverso Tecnologie Avanzate
Role: Co-Principal Investigator
Partnership: UniCT (capofila) and UniME (partner)

Award: €300,000

2021 — 2024 UK Research and Innovation (UKRI), UK

Project: Commercialising next-generation AI models for ultra-efficient analysis of neurological clinical trials

Role: Principal Investigator

Application no.: 74984

Award: £225,531

2022 — 2024 UKRI — Knowledge Transfer Partnerships (KTP), UK

Project: An automated and optimised technical authoring and documentation system powered by AI and NLP — Industry partner: Sonovision

Role: Co-Principal Investigator and Supervisor

Award: £194,743

2020 — 2024 Elettronica S.p.A., IT

Project: Virtual and Augmented Reality Interfaces for AI-Enhanced Decision-Making

Role: Co-Investigator and Supervisor

Two sponsored PhD studentships; ≈ €120,000

2020 CMIC Platform, University College London, UK

Project: Combining data-driven frameworks and disease progression modelling to generate high-resolution medical images

Role: Principal Investigator

Duration: 6-month fellowship; ≈ £30,000

2018 UCL Sandpit Competition, UK

Project: Neuro-Oncology Sandpit winners — improved hyperspectral imaging system for brain cancer detection

Role: Co-Principal Investigator

Award: £65,000

PARTICIPATION IN RESEARCH PROJECTS

2024 — 2026 Rete eHealth — AI e strumenti ICT orientati alla Diagnostica Digitale (rAIdD)

Italian Ministry of Health (Ministero della Salute), IT

Role: Designing and supervising generative models for brain MRI synthesis in collaboration with the Policlinico Universitario di Messina.

2024 — 2026 Detection of Deep Fake Media and Life-Long Media Authentication (FF4ALL)

PNRR — SERICS, IT

Role: Developing deep learning pipelines and contrastive neural networks for deepfake detection.

2024 — Present Security Software Platform (SOP)

PNRR — SERICS (Spoke 6), IT

Role: Researching and supervising AI solutions for automated cyber threat detection.

- 2017 — 2018 **Optical Molecular Imaging for Tissue Diagnosis**
Wellcome/EPSRC, UK (Joint University of Edinburgh & UCL project)
Role: Participation in research for tissue diagnosis.
- 2018 — 2020 **European Progression of Neurological Disease initiative (EuroPOND)**
Horizon 2020, European Union
Role: R&D support; coordination assistance
- 2017 — 2018 **Wellcome/EPSRC Centre for Interventional and Surgical Sciences**
UCL, UK
Role: Supervision, research, and development
- 2015 — 2017 **HELICoiD — HypErspectraL Imaging Cancer Detection**
European Union FP7-ICT Program
Role: Work Package Leader; research and development
- 2014 — 2015 **Elite Sport Performance Research in Training (ESPRIT)**
EPSRC — Engineering and Physical Sciences Research Council, UK
Role: Research and development
- 2015 — 2017 **Smart Sensing for Surgery**
EPSRC — Engineering and Physical Sciences Research Council, UK
Role: Research and development

RECOGNITION AND AWARDS

- 2025: Elsevier — MedIA MICCAI 2024 Special Issue Best Paper Award, runner-up
- 2024: Listed among the world's top 2
- 2017: Best Team Award — FCA Sprint Challenge, Financial Conduct Authority, UK
- 2016: Best Presentation — RA Symposium, Imperial College London, UK
- 2008: Archimede Prize for Outstanding Academic Performance — University of Catania, IT

Teaching Experience

- 2024 — Present **Module Leader**
University of Messina, IT
- Master's in Data Science
 - Big Data Acquisition, 48 h/year
 - Bachelor's in Computer Science
 - Programming, 72 h/year
 - Data Mining Analytics, 48 h/year
 - School of Specialisation in Internal Medicine
 - Informatics, 20 h/year
- 2024 — Present **Lecturer — Qualification Training Courses**
University of Messina, IT
- Operating Systems and Networks with Epistemological References, 12 h/year
 - Didactic Methodologies of Web Programming with Epistemological References, 12 h/year
- 2026 — Present **Lecturer — Level II Master's Programmes**

University of Messina, IT

- Master's in Smart Automation and AI for Production Engineering
 - Generative AI and LLMs, 16 h
- Master's in *Management e Performance in Sanità* (Healthcare Management)
 - Big Data Analytics and AI in Healthcare (*Big data analytics, IA e analisi dei dati in sanità*), 4 h

2026 Lecturer — PhD Program

University of Catania, IT

- *Reading Group: Medical Imaging and AI* (PhD Course). Department of Mathematics and Computer Science.
- Coordinated a specialized course structured across three sessions (six 90-minute seminars), successfully completed by six PhD candidates.

Jul 2022 — Oct 2022 Visiting Professor

University of Catania, IT

Teaching and research visit, Department of Mathematics and Computer Science.

2021 — 2024 Module Leader

University of Hertfordshire, UK

- Digital Computing Principles, 40 h/year
- 3D Vision, 22 h/year
- Machine Learning, 42 h/year
- Data Analytics and Artificial Intelligence, 10 h/year

2024 Visiting Lecturer

Changshu Institute of Technology, China

Digital Computing Principles, 40 h/year

2018 — 2020 Teaching Assistant

University College London, UK

- MPHY0030 Programming Foundations for Medical Image Analysis, 5 h/year
- COMP0028 Computational Photography and Capture, 20 h/year

2011 School Teacher

E-Laborando S.p.A., Catania, IT

IT-Forensics and online payment technologies, 20 h

Supervision and PhD Examinations

VISITING RESEARCHERS HOSTED

- **Mar–May 2026, AI Health Lab, 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.

PHD, MSC AND UNDERGRADUATE SUPERVISION

- **2025 — 2028** — Primary PhD Supervisor, University of Catania, IT
PhD Title: Multimodal generative models for neurodegenerative disease progression
- **2023 — 2026 (Completed)** — Primary PhD Supervisor, University of Catania, IT
PhD Title: Data-driven neurodegenerative disease progression modelling
- **2021 — 2026 (Completed)** — EngD Supervisor, University of Hertfordshire, UK
Title: A Deep Learning-Based Framework for Industrial Predictive Machine Health
- **2022 — 2024** — KTP Project Supervisor (UKRI/KTP), Sonovision, University of Hertfordshire, UK
- **2021 — 2026 (Completed)** — Second PhD Supervisor, University of Hertfordshire, UK
PhD Title: Operational Performance and Perceptual-Cognitive Mechanisms in Immersive Observation of Flying Vehicles
- **2018 — 2020** — Subsidiary PhD Supervisor, University College London, UK
- **2024 — Present** — Supervisor of several MSc and BSc theses, University of Messina, IT
- **2021 — 2024** — Supervisor of several MSc theses, University of Hertfordshire, UK
- **2021 — 2025** — Supervisor of several MSc theses, University of Catania, IT
- **2019 — 2020** — Subsidiary Undergraduate Supervisor, University College London, UK; one nominee for the Dean's Research Prize 2020

PHD VIVA PANEL MEMBERSHIP

- **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*

EXTERNAL PHD EXAMINER

- **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*

Editorial, Review, and Chair Roles

ASSOCIATE EDITOR

- **2025 — Present** — Medical Image Analysis (Q1)
- **2025 — 2026** — Pattern Recognition (Q1)
- **2023 — 2026** — IEEE Engineering in Medicine and Biology Society (EMBS)
- **2021** — IEEE International Conference on Biomedical and Health Informatics (BHI)

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

REVIEWING 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** — IEEE International Conference on Robotics and Automation (ICRA)
- **2018** — International Conference on Pattern Recognition (ICPR)
- **2018** — Sensors
- **2018** — IEEE Transactions on Neural Networks and Learning Systems
- **2017** — Assistive Computer Vision and Robotics
- **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
- **2012** — Information Processing and Management of Uncertainty (IPMU)
- **2011** — Oxford Journals

REVIEWER AND PROGRAM COMMITTEE FOR CONFERENCES

- **2024** — IEEE ICTS4eHealth
- **2024** — **2025** — IEEE Conference on Telepresence
- **2024** — IEEE Engineering in Medicine and Biology Society (EMBS)
- **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 (MetroXRINE)
- **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** — Hamlyn Symposium
- **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)

REVIEWER FOR GRANT APPLICATIONS AND PANELS

- **Feb 2026** — Evaluator for 8 projects, Sicilian Regional Research Projects — Programma Regionale FESR Sicilia 2021/2027, Regione Siciliana, IT.
- **Jun 2026** — External Reviewer, Canada Research Chairs (CRC) Program, Government of Canada (Convergence Portal). Reviewed nomination for the Canada Research Chair in Artificial Intelligence and Computational Neuroscience, University of Toronto, CA.
- **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

TECHNICAL AND AREA CHAIR ROLES

- **2026** — General Chair, IEEE ICTS4eHealth (IEEE International Conference on ICT Solutions for eHealth)
- **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 MetroXRINE, St Albans, UK
- **2024** — Technical Program Chair, ICAETA — International Conference on Advanced Engineering Technology and Applications

Event Organisation

ORGANISED WORKSHOPS

- **15/09/2025** — Computer Vision and Generative Models for Medical Imaging, Rome — in conjunction with ICIAP
- **03/05/2024** — **30/06/2024** — Hammer and Nail: AI in Healthcare, Universities of Catania, Messina, and Hertfordshire — weekly international networking event, 20 h
- **27/01/2023, 24/02/2023, 31/03/2023** — Hammer and Nail in AI, University of Hertfordshire
- **14/10/2021, 21/10/2021** — Generative Adversarial Networks, Deepfakes and Adversarial Learning, University of Hertfordshire
- **12/03/2021** — Current Applications of Machine Learning and AI, University of Hertfordshire

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

Public Engagement and Outreach

STUDENT SUPPORT AND ORIENTATION

- **2025 — 2026** — PCTO Tutor and supervisor, University of Messina, IT.
- **2024 — 2025** — Student Orientation (Consapevolmenete), University of Messina, IT (4 slots)
- **2021 — 2024** — Open Days, University of Hertfordshire, UK (12 slots)
- **2018** — Open Days, University College London, UK (1 slot)
- **2014 — 2016** — Open Days, Imperial College London, UK (6 slots)
- **2010** — Student Support, International Summer School VISMAL, Catania, IT (3 slots)
- **2009 — 2012** — Student Support, International Computer Vision Summer School (ICVSS), IT (20 slots)

DEMO PRESENTER

- **2022** — Outreach, University of Hertfordshire, UK
- **2019** — WEISS Outreach, University College London, UK
- **2018 — 2020** — Journal Club, University College London, UK
- **2015 — 2017** — Hamlyn Symposium, Imperial College London, UK
- **2015** — Royal Society Summer Science Exhibition, Imperial College London, UK

COMMITTEES AND REPRESENTATION

- **Jan 2022 — Present** — Member of the Ph.D. Board in Computer Science (*Collegio del Dottorato in Informatica*, 41st cycle), University of Catania, IT.
- **2025 — Present** — Member, Quality Assurance Group for the Master's Degree in Data Science, University of Messina, IT.
- **Apr — May 2026** — Substitute Member, Selection Commission for Researcher Position (RTT), Department of Computer Science, Sapienza University of Rome, Italy.
- **2024–present** — Committee service, University of Messina: Orientation Committee member; Internship Committee member and Teaching Committee member.
- **2024–present** — Recruiting panel/commission member, University of Messina: MIFT and Law Department.
- **2020** — Thesis committee member, Dementia Research Centre, UCL: Novel diagnostics and monitoring for frontotemporal dementia using app-based cognitive data, eye-tracking data, and smartphone metadata
- **2019** — Elected CMIC Representative, Institute of Healthcare Engineering
- **2017** — Elected Postdoctoral Representative, Imperial College London
- **2011** — Elected PhD Representative, University of Catania

Personal Skills

Mother tongue Italian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C2	C2

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user
[Common European Framework of Reference for Languages](https://europa.eu/europass/levels)

Digital competences

SELF-ASSESSMENT

Information Processing	Communication	Content creation	Safety	Problem solving
Proficient user	Proficient user	Proficient user	Proficient user	Proficient user

[Digital competences - Self-assessment grid](#)

Computer skills

- Proficient in Python, C/C++, Java, MATLAB.
- Experience with machine learning and deep learning frameworks: TensorFlow, PyTorch.
- Familiar with image processing libraries: OpenCV, VLFeat.
- Skilled with Git, PyCharm, Android Studio, Microsoft Visual Studio.
- Experience in embedded systems and mobile app development.

MISCELLANEA: APP DEVELOPMENT

ActiveMiles Android app for human activity recognition using a fast AI engine optimised for embedded devices. Supports real-time classification of activities from sensor data with efficient and accurate inference.

FoodRec Android app for food image recognition using an efficient CNN-based engine. Enables automatic classification of food items from images for dietary monitoring and related applications.

Driving licence A, B

Referees

Prof. Daniel Alexander

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Prof. Frederik Barkhof

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Research Summary

Associate Professor in Artificial Intelligence for Healthcare with expertise in advanced AI solutions for clinical applications. Research targets early disease diagnosis (e.g., cancer, Alzheimer's), surgical guidance, and smart patient monitoring.

Leadership across commercialised research, independent projects, and cross-disciplinary collaborations. Supervision of diverse researchers and deployment of validated AI technologies for clinical use.

Selected AI pipelines:

- **ActiveMiles**: AI for processing sensor data and images from smartphones/wearables to measure biological parameters.
- **FR-t-SNE**: Deep learning for spatio-spectral embedding and real-time brain-cancer visualisation in surgery.
- **Cycle-consistency GAN**: Unsupervised super-resolution for endomicroscopy images.
- **4D-DANI-Net**: Spatio-temporal disease progression modelling for simulating neurodegenerative conditions in brain MRI.

Four research areas:

1. **AI for Optical Biopsy**: Frameworks assisting surgeons in tissue assessment and accurate intraoperative diagnostics.
2. **Disease Progression Modelling**: Predictive deep learning enabling personalised treatments via accurate simulation of disease dynamics.
3. **Digital Biomarkers**: Wearable and mobile monitoring of patient parameters to enhance early detection and reduce care costs.
4. **Image Quality Control**: Automated identification of abnormalities, label errors, and artefacts for robust medical-imaging pipelines.

Invited Talks and Keynotes

- **9 Oct 2026, Convegno Nazionale SIML, Giardini Naxos, IT**: Invited Talk: *Costruire e validare modelli di intelligenza artificiale in sanità*
- **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*
- **24 Feb 2026, Winter Lab 2026, Catania, IT**: Keynote: *Revolutionizing Medical Imaging Using Generative Models*
- **12 Dec 2025, DevFest Mediterranean 2025 - Google Developer Groups, Sant'Agata di Militello, Messina, IT**: Keynote: *L'IA rivoluziona la medicina: diagnosi precoci e gemelli virtuali*
- **28 Oct 2025, GoAhead - Società Italiana di Farmacia Ospedaliera, Catania, IT**: Keynote: *AI-Powered Healthcare*
- **17 May 2025, TEDxCatania, Catania, IT**: Keynote: *L'IA rivoluziona la medicina: diagnosi precoci e gemelli digitali*
- **11 Apr 2025, Dept. of Computer Science, University of Catania, IT**: I Workshop on Generative AI & Computer Vision — Keynote: *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** — Keynote: *Redefining the Healthcare Landscape Using Generative AI*
- **19 Dec 2024, Dept. of Computer Science, University of Catania, IT**: Keynote: *Revolutionising Medical Imaging Using Generative Models*
- **15–19 Jul 2024, Durham University, 27th BMVA Computer Vision Summer School (CVSS)**: Keynote: *Revolutionising Medical Imaging Using Generative Models*
- **12 Jun 2024, University of Hertfordshire, SPECS 2024 Research Conference**: Panellist: *Advancing AI in Health and Social Care*

- **19 Mar 2024, Dept. of Computer Science, University of Catania, IT:** Workshop on Generative AI & Computer Vision — Keynote: *Unveiling Generative Models Revolutionising Medical Imaging*
- **18 Jan 2024, Dept. of Computer Science, University of Catania, IT:** Keynote: *Generative Models in Medical Imaging*
- **12 Dec 2023, Dept. of Computer Science, University of Catania, IT:** Keynote: *Deep Learning for Medical Imaging*
- **24 May 2023, University of Hertfordshire, HHA Knowledge Exchange Event:** Research Spotlight — Health Big Data — Keynote: *How AI and Large Clinical Datasets Are Reshaping Healthcare Infrastructure*
- **16 May 2023, Dept. of Computer Science, University of Catania, IT:** Keynote: *Exploring Image Acquisition from Different Modalities in Medical Imaging*
- **22 Apr 2023, InProcVision — Prague:** Keynote: *Challenges and Opportunities of AI in Medical Imaging*
- **13 Apr 2023, I.T.I.S. E. Torricelli, S. Agata M.lo, Messina, IT:** Keynote: *Challenges and Opportunities of AI in Medical Imaging*
- **12 Apr 2023, University of Messina, MIFT Department, IT:** Talk: *AI in Medical Imaging and Healthcare*
- **21 Dec 2022, Dept. of Computer Science, University of Catania, IT:** Talk: *AI for Medical Imaging, Smart Sensing and Disease Progression Modelling*
- **09 Sep 2022, Dept. of Pedagogical, Psychological, Cognitive Sciences and Cultural Studies, University of Messina, IT:** Talk: *AI for Medical Imaging, Smart Sensing and Disease Progression Modelling*
- **21 Jun 2022, DISI — Dept. of Computer Science and Engineering, University of Bologna, IT:** Talk: *AI for Medical Imaging, Smart Sensing and Disease Progression Modelling*
- **09 May 2022, Dept. of Computer Science, University of Catania, IT:** Talk: *Machine Learning and Medical Imaging*
- **12 May 2021, Dept. of Computer Science, University of Catania, IT:** Talk: *AI for Medical Imaging, Smart Sensing and Disease Progression Modelling*
- **27 Jun 2020, Netherlands Cancer Institute, Amsterdam, NL:** Talk: *Deep Learning for Oncology, Image-Based Disease Progression Modelling and Smart Sensing*
- **10 May 2019, UCLICL Workshop, UCL, UK:** Talk: *Deep Learning for Health Informatics and Medical Interventions — Degenerative Adversarial NeuroImage Nets*
- **09 Apr 2019, Amsterdam UMC, NL:** Talk: *Degenerative Adversarial NeuroImage Net: Simulation of Neurodegenerative Disease Progression*
- **30 Jan 2019, CMIC, UCL, UK:** Talk: *Adversarial Training with Cycle Consistency for Unsupervised Super-Resolution in Endomicroscopy*
- **16 Nov 2018, Linkverse, Rome, IT:** Talk: *Deep Learning for Health Informatics and Medical Interventions*
- **18 Jul 2018, MIDL Conference, Amsterdam, NL:** Talk: *Adversarial Training with Cycle Consistency for Unsupervised Super-Resolution in Endomicroscopy*
- **16 Mar 2018, Dept. of Computer Science, University of Catania, IT:** Talk: *Deep Learning for Health Informatics and Medical Interventions*

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