

Curriculum Vitae — Concetto Spampinato

University of Catania, Department of Computer Engineering, Italy

1 Education and Professional Experience

1.1 Education

- **Ph.D. in Computer Engineering and Telecommunications**, University of Catania, awarded on 18/10/2008. Ph.D. thesis: "A Motion Detection System Based on Statistical Object Modeling for Outdoor Applications." Advisor: Prof. Daniela Giordano (UNICT). Part of the Ph.D. was developed at the School of Informatics, University of Edinburgh under the supervision of Prof. R. B. Fisher.
- **MS Degree in Computer Engineering** at the University of Catania, awarded on 28/01/2004 with a grade of 110/110 cum laude.

1.2 Additional Qualifications

- **National Scientific Qualification** as a full professor in Computer Engineering (13/11/2020)
- **National Scientific Qualification** as a full professor in Computer Science (09/07/2020)

1.3 Professional Experience

- From 01/10/2021 to present, **associate professor**, at the Department of Electrical, Electronics, and Computer Engineering, University of Catania, Italy
- From 01/10/2018 to 30/09/2021 **researcher with tenure track - full time** at the Department of Electrical, Electronics, and Computer Engineering, University of Catania, Italy
- From 01/04/2018, "**Courtesy Faculty Member**" at the Center for Research in Computer Vision, University of Central Florida, USA
- From 01/12/2014 to 30/09/2018 **researcher** at the Department of Electrical, Electronics, and Computer Engineering, University of Catania, Italy
- From 01/12/2011 to 30/11/2014 **research fellow** at the Department of Electrical, Electronics, and Computer Engineering, University of Catania. Research Program: "Object detection, tracking and behavior understanding in underwater video"

- From 01/12/2009 to 30/11/2011 **research fellow** at the Department of Electrical, Electronics, and Computer Engineering, University of Catania. Research Program: "CBIR (Content Based Image Retrieval) and MCR (Multitype Content Repurposing) on distributed systems"
- From 01/06/2008 to 30/09/2009 **researcher** in the field of bioimaging and bioengineering with tasks of coordinating research activities of junior researchers for the technological transfer center in the Bio-tech sector established by the Municipality of Catania within the "ICT Program for the excellence of territories" under the Framework Program Agreement between the Sicilian Region, the Ministry of Economy, and the Ministry of Innovation and Technologies

2 Teaching

2.1 Courses

A.Y. 2023/2024

- Instructor for the **Deep Learning** course in the Master's Degree in Computer Engineering (University of Catania).
ECTS: 6
- Instructor for the **Advanced Deep Learning** module in the Master's Degree in Data Science (University of Catania).
ECTS: 6
- Instructor for the **Databases and Web Programming** course in the Bachelor's Degree in Computer Engineering (University of Catania).
ECTS: 8
- Instructor for the **Database** course in the Bachelor's Degree in Computer Engineering (University of Catania).
ECTS: 6

A.Y. 2022/2023

- Instructor for the **Knowledge Discovery Module** in the Master's Degree in Data Science (University of Catania).
ECTS: 6
Student satisfaction percentage: 90.1%
- Instructor for the **Databases and Web Programming** course in the Bachelor's Degree in Computer Engineering (University of Catania).
ECTS: 12
Student satisfaction percentage - Databases: 91.5%
Student satisfaction percentage - Web Programming: 85.5%

- A.Y. 2021/2022**
- Instructor for the **Knowledge Discovery Module** in the Master's Degree in Data Science (University of Catania).
ECTS: 6
Student satisfaction percentage: 100.0%
 - Instructor for the **Databases and Web Programming** course in the Bachelor's Degree in Computer Engineering (University of Catania).
ECTS: 10
Student satisfaction percentage - Databases: 93.7%
Student satisfaction percentage - Web Programming: 92.0%
- A.Y. 2020/2021**
- Instructor for the **Knowledge Discovery Module** in the Master's Degree in Data Science (University of Catania).
ECTS: 6
Student satisfaction percentage: 100.0%
 - Instructor for the **Databases and Web Programming** course in the Bachelor's Degree in Computer Engineering (University of Catania).
ECTS: 10
Student satisfaction percentage - Databases: 84.9%
Student satisfaction percentage - Web Programming: 85.4%
- A.Y. 2019/2020**
- Instructor for the **Databases Module** in the Master's Degree in Data Science (University of Catania).
ECTS: 6
Student satisfaction percentage: 100.0%
 - Instructor for the **Databases and Web Programming** course in the Bachelor's Degree in Computer Engineering (University of Catania).
ECTS: 10
Student satisfaction percentage - Databases: 97.5%
Student satisfaction percentage - Web Programming: 91.8%
- A.Y. 2018/2019**
- Instructor for the **Databases and Web Programming** course in the Bachelor's Degree in Computer Engineering (University of Catania).
ECTS: 12
Student satisfaction percentage - Databases: 97.5%
Student satisfaction percentage - Web Programming: 89.3%
 - Instructor for the **Fundamentals of Computer Science** course in the Bachelor's Degree in Industrial Engineering (University of Catania). *ECTS: 3*
Student satisfaction percentage: 86.8%

- A.Y. 2017/2018**
- Instructor for the **Database and Information Systems** course in the Bachelor's Degree in Computer Engineering (University of Catania).
ECTS: 6
Student satisfaction percentage: 80.7%
 - Instructor for the **Fundamentals of Computer Science** course in the Bachelor's Degree in Industrial Engineering (University of Catania).
ECTS: 9
Student satisfaction percentage: 80.3%
- A.Y. 2016/2017**
- Instructor for the **Database and Information Systems** course in the Bachelor's Degree in Computer Engineering (University of Catania).
ECTS: 6
Student satisfaction percentage: 86.0%
 - Instructor for the **Fundamentals of Computer Science** course in the Bachelor's Degree in Industrial Engineering (University of Catania).
ECTS: 9
Student satisfaction percentage: 88.2%
- A.Y. 2015/2016**
- Instructor for the **Fundamentals of Computer Science** course in the Bachelor's Degree in Industrial Engineering (University of Catania).
ECTS: 9
Student satisfaction percentage: 90.8%
- A.Y. 2014/2015**
- Instructor for the **Fundamentals of Computer Science** course in the Bachelor's Degree in Industrial Engineering (University of Catania).
ECTS: 9
- A.Y. 2013/2014**
- Instructor for the **Fundamentals of Computer Science** course in the Bachelor's Degree in Industrial Engineering (University of Catania).
ECTS: 9
- A.Y. 2008/2009**
- Instructor for the **Database** course in the Bachelor's Degree in Computer Engineering (University of Catania).
ECTS: 6
 - Instructor for the **Database** course in the Bachelor's Degree in Telematics Engineering (Kore University of Enna).
ECTS: 6

2.2 Ph.D.

2.2.1 Ph.D. Theses

- **Supervisor** of the Ph.D. thesis titled “Accelerating Reality: Virtual Environment Generation for Outdoor Robot Navigation using Deep Learning” by Giuseppe Vecchio, 36th cycle of the Ph.D. program in Systems Engineering, Energy, Informatics, and Telecommunications.
- **Supervisor** of the Ph.D. thesis titled “Controllable Generative Models for Human-Guided Data Synthesis and Applications in Radio-Astronomy” by Renato Sortino, 36th cycle of the Ph.D. program in Systems Engineering, Energy, Informatics, and Telecommunications.
- **Supervisor** of the Ph.D. thesis titled “Neurocognitive-Inspired Paradigms for Continual Learning” by Giovanni Bellitto, 36th cycle of the Ph.D. program in Systems Engineering, Energy, Informatics, and Telecommunications.
- **Co-supervisor** of the Ph.D. thesis titled “From Centralization to Collaboration: Harnessing Generative Models in Federated Learning for Medical Image Analysis” by Federica Proietto Salanitri, 36th cycle of the Ph.D. program in Systems Engineering, Energy, Informatics, and Telecommunications.
- **Supervisor** of the Ph.D. thesis titled “Deeply Incorporating Human Capabilities Into Machine Learning Models For Fine-Grained Visual Categorization” by Francesca Murabito, 31st cycle of the Ph.D. program in Systems Engineering, Energy, Informatics, and Telecommunications.

2.2.2 Ph.D. Student Tutors

Cycle XXXVIII

- **Tutor** for student Rutger Hendrix on the topic “Federated Explainable AI” for the *National Ph.D. in AI in the “Health and Life Science” field at the Campus Biomedico of Rome.*
- **Tutor** for student Riccardo Sarpietro on the topic “Neuro-inspired Reinforcement and Meta Learning Methods” for the *Ph.D. in Systems Engineering, Energy, Informatics, and Telecommunications at the University of Catania.*
- **Tutor** for student Luca Palazzo on the topic “Federated Learning Methodologies for Edge Computing Deployment” for the *Ph.D. in Systems Engineering, Energy, Informatics, and Telecommunications at the University of Catania.*
- **Co-Tutor** for student Amelia Sorrenti on the topic “Biologically-Inspired Meta Learning” for the *National Ph.D. in AI in the “Health and Life Science” field at the Campus Biomedico of Rome.*
- **Co-Tutor** for student Luigi Quarantiello on the topic “A Modular AI Framework for Building Hybrid NetHack Agents” for the *National Ph.D. in AI in the “Society” field at the University of Pisa.*

Cycle XXXVII

- **Tutor** for student **Matteo Pennisi** on the topic “Federated Continual Learning in Medical Applications” for the *National Ph.D. in AI in the “Health and Life Science” field at the Campus Biomedico of Rome*.
- **Tutor** for student **Raffaele Mineo** on the topic “Unraveling Spatio-Temporal Attention in Medical Images for Enhanced Diagnosis and Prevention” for the *National Ph.D. in AI in the “Health and Life Science” field at the Campus Biomedico of Rome*.
- **Tutor** for student **Morteza Moradi** on the topic “Joint Video Saliency Prediction for Assessing Driver Attention to Road Elements for Automotive” for the *Ph.D. in Systems Engineering, Energy, Informatics, and Telecommunications at the University of Catania*.

Cycle XXXVI

- **Tutor** for student Giovanni Bellitto on the topic “Neurocognitive-Inspired Paradigms for Continual Learning” for the *Ph.D. in Systems Engineering, Energy, Informatics, and Telecommunications at the University of Catania*.
- **Tutor** for student Renato Sortino on the topic “Controllable Generative Models for Human-Guided Data Synthesis and Applications in Radio-Astronomy” for the *Ph.D. in Systems Engineering, Energy, Informatics, and Telecommunications at the University of Catania*.
- **Tutor** for student Giuseppe Vecchio on the topic “Accelerating Reality: Virtual Environment Generation for Outdoor Robot Navigation using Deep Learning” for the *Ph.D. in Systems Engineering, Energy, Informatics, and Telecommunications at the University of Catania*.
- **Tutor** for student Spadaro Paolo on the topic “Advanced Analysis of Spatio-Temporal Data for the Recognition of Volcanic Dynamics” for the *Ph.D. in Systems Engineering, Energy, Informatics, and Telecommunications at the University of Catania*.
- **Co-Tutor** for student Federica Proietto Salanitri on the topic “From Centralization to Collaboration: Harnessing Generative Models in Federated Learning for Medical Image Analysis” for the *Ph.D. in Systems Engineering, Energy, Informatics, and Telecommunications at the University of Catania*.
- **Co-Tutor** for student Giulia Castagnolo on the topic “Deep Convolutional Models for Precision Livestock Farming” for the *Ph.D. in Systems Engineering, Energy, Informatics, and Telecommunications at the University of Catania*.

Cycle XXXI

- **Tutor** for student Francesca Murabito on the topic "Deeply Incorporating Human Capabilities Into Machine Learning Models For Fine-Grained Visual Categorization" for the *Ph.D. in Systems Engineering, Energy, Informatics, and Telecommunications at the University of Catania*.

2.2.3 Participation in Ph.D. Committees

- Since April 22, 2021, **member of the board** for the "NATIONAL Ph.D. IN ARTIFICIAL INTELLIGENCE" - University "Campus Bio-Medico" of ROME.
- Since June 1, 2016, **member of the board** for the Ph.D. program in "Systems Engineering, Energy, Informatics, and Telecommunications" - University of Catania.
- **Member of the Evaluation Committee** for the National Ph.D. in Artificial Intelligence (Health and Life Science Area) 38th cycle A.Y. 2022/2023.
- **Member of the Evaluation Committee** for the National Ph.D. in Artificial Intelligence (Health and Life Science Area) 37th cycle A.Y. 2021/2022.
- **Member of the examination board** for the final examination for the award of the Ph.D. degree in "Modeling and Data Science" – 35th cycle, University of Turin.
- **Member of the examination board** for the final examination for the award of the Ph.D. degree in "Computer Science" by candidate Elissavet Batziou, Queen Mary University, London.
- **Member of the examination board** for the final examination for the award of the Ph.D. degree in "INFORMATION AND COMMUNICATION TECHNOLOGY FOR HEALTH" 35th cycle, Federico II University of Naples.
- **Member of the examination board** for the award of the Ph.D. degree in "Informatics and Telecommunications" by candidate Ghaemmaghami Tabrizi Pouya, University of Trento.
- **Member of the examination board** for the award of the Ph.D. degree in "Informatics and Telecommunications" by candidate Andrea Petracca, Ph.D. in Health and Environmental Sciences, University of L'Aquila.
- **Member of the examination board** for the award of the Ph.D. degree in "Informatics and Telecommunications" by candidate Massimo Minervini, Ph.D. in "Computer Science and Engineering," IMT Institute for Advanced Studies, Lucca.
- **External evaluator** for Ph.D. theses at the University of Modena and Reggio Emilia, University of Parma, University of Turin, University of Trento, University "La Sapienza" in Rome, IMT Institute for Advanced Studies, Indian Institutes of Technologies, Anna University Chennai, Queen Mary University.

3 Research activity

My research activity falls within Artificial Intelligence in general, and specifically in Computer Vision and Machine Learning. In particular, research activities are aimed at developing methods for pattern recognition, computer vision, and machine learning, and their application to real-world problems to support the analysis of multimodal data in different contexts. These contexts range from underwater computer vision (of which I am one of the pioneers internationally, thanks to the Fish4Knowledge project developed with Prof. Bob Fisher of the University of Edinburgh) to medical imaging and video surveillance.

In recent years, research activities have been oriented towards developing methods to emulate the visual and cognitive system of humans and their integration into automatic methods of visual data analysis. This activity has led to the definition of a new research strand, i.e., “human-based computer vision systems,” which shifts the traditional paradigm in artificial intelligence systems from “machines must support human activities” to “what humans can do for machines.” Within this research strand, algorithms for computer vision, images, and videos have been proposed with different levels of human involvement, covering various approaches:

- Integration of a-priori knowledge on visual perception, based on the Gestalt laws of perceptual organization, into automatic methods of video analysis to identify and extract moving objects.
- Integration of implicit human feedback, through the use of gaze (eye gaze), and explicit feedback, through clicks in gamification contexts, for the development of semi-automatic and/or interactive video analysis methods that exploit either the intrinsic ability of humans to understand visual scenes or the capabilities of collective intelligence.
- Processing of human visual and cognitive processes, through the analysis of brain activity, and subsequent integration of these processes into completely automatic methods to understand visual scenes. The results obtained in this work have also allowed the development of generative methods based on deep learning capable of regenerating the visual stimulus (generally an image) that has evoked specific brain activity in humans.
- AI models inspired by cognitive models in neuroscience that describe the role of online and offline brain states during learning.

The above-mentioned aspects are integrated into different areas of machine learning, such as:

- Generative adversarial learning not only as a generation tool but also to support unsupervised learning.
- Semantic modeling of visual scenes and translation of these concepts into low-level constraints in traditional classification models.
- Continual learning using rehearsal methods that mitigate the problem of non-i.i.d distributions.
- Federated learning using synthetic data generation in privacy-preserving mode to build buffers capable of supporting the creation of distributed AI models without the need to move real data.

- Imitation and reinforcement learning to support autonomous robot navigation in unstructured environments.
- Sequence models (transformers) for knowledge distillation of models through the matching of learning trajectories.
- Biologically-inspired optimization methods that go beyond the traditional back-propagation approach.

During the research activity, I have also worked on AI applied to medical image and signal analysis, underwater computer vision, computer vision in astronomy. The main multidisciplinary applications include:

- Methods for automatic segmentation of CT scans for modeling and characterization of anatomical structures (e.g., mandible, liver, etc.).
- AI methods for analysis of neural EEG and/or TMS signals, both to understand the neural responses of subjects and for the diagnosis and treatment of neurological pathologies.
- Deep learning methods for analyzing X-rays for skeletal age assessment.
- Methods, also based on principles of Explainable AI (XAI), for the analysis of CT scans for the characterization of various types of tumors (e.g., lungs, pancreas) and pathologies (e.g., COVID).

3.1 Organization, Coordination, and Participation in Research Groups

- **Founder and Coordinator** of the Pattern Recognition and Computer Vision Laboratory (PeRCeiVe Lab) at the University of Catania. The laboratory currently consists of a team of approximately 20 researchers, postdocs, and doctoral students. Website: www.perceivelab.com. The laboratory is registered with the Italian Association for Computer Vision, Pattern Recognition, and Machine Learning (CVPL). Website: <https://www.cvpl.it/scheda-laboratorio/?idlab=42>.
- **“Courtesy Faculty Member”** at the Center for Research in Computer Vision (University of Central Florida) directed by Prof. Mubarak Shah. <https://www.crcv.ucf.edu/people/faculty/>
- **“Associated Member”** at the Machine and Hybrid Intelligence Lab directed by Prof. Ulas Bagci at Northwestern University of Chicago (USA).
- **Participation in the activities** of Prof. Stefano Albrecht’s research group “Autonomous Agents Research Group” at the Institute of Perception, Action, and Behaviour - School of Informatics, University of Edinburgh. Research topic: “Imitation Learning for Robot Navigation in 3D real and simulated environments”.
- **Participation in the activities** of Prof. R. B. Fisher’s research group at the Institute of Perception, Action, and Behaviour - School of Informatics, University of Edinburgh on “Object Detection and Tracking Methods under Extreme Conditions”. During collaboration with Prof. Fisher and his research group, the project proposal “Fish4Knowledge” was conceived and later funded by the European Commission in FP7 (see the section on titles for details).

- **Participation in the activities** of Dr. J. Chen Burgher’s research group at the Artificial Intelligence Application Institute - School of Informatics, University of Edinburgh on “Semantics and Planning Based Workflow Composition for Automatic Video Processing”.

3.2 Research Responsibilities and Scientific Projects

3.2.1 Peer-reviewed International and National Research Projects

- **Scientific Coordinator** for the University of Catania of the project “*FAIR: Future Research on Artificial Intelligence*”, PNRR PE_1: Artificial intelligence: foundational aspects. *Contribution for the University of Catania: 5,703,895.00 €.*
- **Scientific Coordinator** for the University of Catania of the project “*Bias-Free Artificial Intelligence methods for automated visual Recognition: detecting human prejudice in visual annotations and mitigating its effects on models’ learning (B-FAIR)*”, PRIN 2022. *Contribution for the University of Catania: 52,048.67 €.*
- **Scientific Coordinator** for the University of Catania of the project “*Neurokit2E - Open source deep learning platform dedicated to Embedded hardware and Europe*” - HORIZON-KDT-JU-2022-2-RIA. *Contribution for the University of Catania: 200,000.00 €.*
- **Co-scientific Coordinator** of the project “*Greentech Mediterranean Innovation Hub*”, call “Innovation ecosystems in the South of Italy”, Agenzia per la Coesione Territoriale. Specifically, responsible for the realization of the *High Performance Computing and Artificial Intelligence center with a budget of approximately 1,993,200.00 €.*
- **Scientific Coordinator** for the University of Catania of the project “*LEarning the Geometry of knOwledge in AI systems: LEGO.AI*”, PRIN 2020. *Contribution for the University of Catania: 118,290 €.*
- **Scientific Coordinator** of the project “*Explainable Artificial Intelligence (XAI) Models for Robust and Effective Radiomics using CT data*”, Fondazione CRUI, under the “Go for IT” Project funded by the Ministry of University and Research on FISR resources. *Funding: 30,000 €.*
- **Scientific Coordinator** for the University of Catania of the research project “*RehaStart: Research and development of technologies and methodologies for the implementation of high economically and socially sustainable telerehabilitation solutions*”, call “Action 1.1.5 - Support for the technological advancement of companies through the financing of pilot lines and early validation actions of products and large-scale demonstrations” - POR 2014/2020 - Sicily Region. *Contribution for the University of Catania: 433,792.00 €.*
- **Scientific Coordinator** for the University of Catania of the research project “*iHOSP: Domiciliary medical assistance at a distance through an interactive smart medicine infrastructure*”, call “Action 1.1.5 - Support for the technological advancement of companies through the financing of pilot lines and early validation actions of products and large-scale demonstrations” - POR 2014/2020 - Sicily Region. *Contribution for the University of Catania: 342,323.00 €.*

- **Scientific Coordinator** for the University of Catania of the research project *“Biotrak: Definition and qualification of an innovative traceability and certification system for zootechnical supply chains characterized by the use of residual biomasses from the olive sector”*, call “Action 1.1.5 - Support for the technological advancement of companies through the financing of pilot lines and early validation actions of products and large-scale demonstrations” - POR 2014/2020 - Sicily Region. *Contribution for the University of Catania: 741,052.60 €.*
- **Activity Responsible** WP1 “Automatic Video Analysis” of the Fish4Knowledge project (2011-2013), a project funded by the European Union under the seventh framework program [FP7/2007-2013] grant agreement 257024. Originator of the project and involved in the drafting phase.
- **Activity Responsible** “Estimating Fish Size Using Stereo-Based Analysis and Fish Species Classification” for AQUACAM, a research program funded by the Fish4Knowledge project (www.fish4knowledge.eu), the C-Fish Project (<http://c-fish.org/about/caribsav/>), University of Catania, and University of West Indies (Jamaica). The project aimed to develop stereoscopic vision systems for the automatic assessment of biomass in underwater environments.
- **Responsible for the activity** “Explainable AI in Federated Learning Scenarios and FAIR digital twins” of WP4 - Spoke 9 for the project *“ICSC National Research Centre for High-Performance Computing, Big Data and Quantum Computing”*, Call for National Centers, PNRR.
- **Responsible for the activities** “AT2: Design, acquisition, and commissioning of the hardware components of the ICT infrastructure,” “AT8: Design, implementation, and optimization of the Computing & Storage layer,” “AT14: Development of the IA layer” for the *“rAIdD Project - eHealth Network: AI and innovative ICT tools aimed at Digital Diagnostics”*, Call for Development and Health Cohesion - FSC 2014-2020, Health operational plan - Path 2 “eHealth, advanced diagnostics, medical devices, and minimally invasive”, Ministry of Health.
- **Responsible for the activity** “OR 7.5: Implementation of a low-cost system based on artificial intelligence for remote monitoring of the cognitive status of patients with MCI” of the *“4FRAILTY Project – Intelligent sensors, infrastructures, and management models for the safety of fragile subjects”*, Call for PON Research and Innovation 2014-2020, Ministry of University and Research.

3.2.2 Studies and Research commissioned by Public and/or Private Institutions

- **Scientific Coordinator** of the research contract (20,000.00 €) between STMicroelectronics s.r.l. and the University of Catania, for “Design and implementation of intelligent systems for advanced modeling of power devices, in the form of discretized and power-modules, in order to carry out a complete multi-physics characterization from a reliability perspective”.
- **Scientific Coordinator** of the project “KD-ViT: Knowledge Distillation in Vision Transformers” for the IS CRA C call of CINECA. Funding: 20,000 GPU hours on DGX machine. Market value, using standard Amazon AWS costs of 3 USD per hour, is 60,000 USD.

Project	Period	Institution	Call	Role	Budget (€)
FAIR	2023-2025	MUR	PNRR-PE	Spoke Co-PI	5,703,895.00
B-FAIR	2023-2025	MUR	PRIN	Unit PI	52,048.67
NEUROKIT2E	2023-2026	Horizon Europe	KDT-JU-2022-2-RIA	Unit PI	200,000.00
Greentech MIH	2022-2024	Ag. Coesione Territoriale	Ecosistemi del mezzogiorno	Co-PI	1,993,200.00
Lego.AI	2022-2025	MUR	PRIN	Unit PI	118,290.00
Med-XAI	2021	CRUI	GoForIt	PI	30,000.00
Rehastart	2019-2023	Regione Sicilia	PO FESR 2014/2020	Unit PI	433,792.00
iHOSP	2019-2023	Regione Sicilia	PO FESR 2014/2020	Unit PI	342,323.00
Biotrak	2019-2023	Regione Sicilia	PO FESR 2014/2020	Unit PI	741,052.00
Total					9,614,600.67

Summary of funding from AI research projects.

- **Scientific Coordinator** of the project “Decoding Human Thoughts from EEG”, NVIDIA Academic Hardware Grant Program. Funding for 4 GPUs: two Quadro P6000, and two Titan X Pascal worth approximately 18,000 USD.
- **Scientific Coordinator** of the research contract (55,000 €) between the Istituto Nazionale di Geofisica e Vulcanologia (INGV) and the University of Catania, for “Development of Artificial Intelligence systems, based on Deep Learning, for the prediction of UNREST phases of volcanoes” within the H2020 EUROVOLC project.
- **Coordinator of the agreement** for the funding of no. 1 PhD scholarship for the course “PhD in ENGINEERING OF SYSTEMS, ENERGETICS, INFORMATICS AND TELECOMMUNICATIONS” Cycle XXXVIII at the DIEEI by STMicroelectronics – Catania. Scholarship theme: ”Study, analysis, and design of Artificial Intelligence (AI)-based models for the electrical and electromechanical modeling of power devices/power modules. Design and implementation of AI-based models for monitoring the lifetime of power devices and for predictive reliability characterization.” Funded amount: 66,122.00 €.
- **Coordinator of the agreement** for the co-financing of no. 1 PhD scholarship for the course “PhD in ENGINEERING OF SYSTEMS, ENERGETICS, INFORMATICS AND TELECOMMUNICATIONS” Cycle XXXVI by INAF – Catania. Scholarship theme: ”AI crossing the borders of Astronomy and Particle Physics: Unsupervised and Explainable Deep Learning Models for Discovery in SKA and DUNE precursors Big Data.” Funded amount: 30,000.00 €.
- **Scientific Coordinator** of the project “S2-FAIR: Safe and Smart Farming with Artificial Intelligence and Robotics” funded by the University Research Incentive Plan 2020/2022 (Pia.ce.ri.)- Line 2 – Departmental Research - University of Catania. Funding: 98,545.44 €.
- **Scientific Coordinator** of the project “Adaptive Brain-Derived Artificial Intelligence Methods for Event Detection” funded by the University Research Incentive Plan 2020/2022 (Pia.ce.ri.)- Line 3 Starting Grant - University of Catania. Funding: 10,000 €.
- **Winner of the Chance Call** of the University of Catania for the presentation - as coordinator - of the project proposal “SeaAware: Collective Human-Machine Intelligence for the Coordination of Sustainable Biological and Socioeconomic Processes in Marine Ecosystems” for the H2020-ICT-2017-1 call. Contribution: 15,000 €.

- **Scientific Coordinator** of the research contract (duration 20 months for an amount of 48,000 €) between the company Sikebit srls and the University of Catania, for the development of machine learning activities within the project “ADVANCED MONITORING OF DATA TOURIST ONLINE”, Call “Horizon 2020” PON I&C 2014-2020.
- **Scientific Coordinator** of the research contract (duration 20 months for an amount of 43,000 €) between the company Ruletech srl and the University of Catania, for the development of intelligent crawling systems within the project “ADVANCED MONITORING OF DATA TOURIST ONLINE”, Call “Horizon 2020” PON I&C 2014-2020.
- **Scientific Coordinator** of the research activity (duration 18 months for an amount of 97,500 €) commissioned by RedRaion srl: focusing on research on “Deep-Learning Methods for Lesion Identification and Classification in Endoscopy Videos”.
- **Scientific Coordinator** of the research “Human-based Computer Vision Systems leveraging Deep Learning for Understanding the Visual World”, Departmental Research Plan DIEEI 2017 University of Catania. Contribution: 45,000 €.
- **Scientific Coordinator** of the research contract (duration 12 months for an amount of 18,000 USD) between the company Tab2ex, LLC, a Delaware limited liability company San Jose, CA (United States of America), and the University of Catania, for the development of a research activity on “Deep-Learning Algorithms for Table Layout Detection in Digital Document Processing”.

Project	Period	Activity	Role	Budget (€)
ST Microelectronics	2023	AI for power device modeling	PI	20,000.00
INGV	2022	UNREST prediction via deep learning	PI	55,000.00
UNICT@Pia.ce.ri (Linea 2)	2020-2022	S2-FAIR	PI	98,545.44
UNICT@Pia.ce.ri (Linea 3)	2020-2022	Brain-inspired AI for Event Detection	PI	10,000.00
UNICT@Chance	2020	Project SeaAware	PI	15,000.00
Sikebit	2019-2021	Machine learning for tourism monitoring	PI	48,000.00
Ruletech	2019-2021	Intelligent crawling systems	PI	43,000.00
RedRaion	2019-2021	DL systems for VCE data analysis	PI	97,500.00
Tabex	2019	DL methods for Table Layout Detection	PI	10,000.00
Departmental Research	2017	Human-based Computer Vision	PI	45,000.00
Total				442,045.44

AI Research funded by Public/Private Institutions.

3.3 Research Assignments at Universities and/or Research Institutions

- From 01/07/2023 **Scientific Collaboration Agreement** with the *Italian Institute of Technology (IIT)* in Genoa for the development of continual learning methods based on cognitive theories for visual categorization.
- From 19/06/2023 to 04/07/2023 **Visiting Faculty Member** at the Centre for Intelligent Sensing, Computer Vision Group, and Advanced Robotics, Queen Mary University of London. *Center for Research in Computer Vision* at the University of Central Florida (USA).

- From 01/04/2018 **Courtesy Faculty Member** at the *Center for Research in Computer Vision* (a world-leading center in computer vision and pattern recognition), University of Central Florida, USA.
- From 01/11/2016 to 31/01/2017 **Visiting Faculty Member** at the *Center for Research in Computer Vision* at the University of Central Florida (USA).
- From 01/02/2010 to 31/03/2010 **Visiting Research Fellow** under the supervision of Prof. B. Fisher at the *Institute of Perception, Action and Behaviour of the School of Informatics, University of Edinburgh*, UK.
- From 01/07/2009 to 30/09/2009 **Visiting Research Fellow** under the supervision of Prof. B. Fisher at the *Institute of Perception, Action and Behaviour of the School of Informatics, University of Edinburgh*, UK.
- From 01/06/2007 to 30/09/2007 **Visiting Research Fellow** under the supervision of Dr. J. Chen-Burger at the *Artificial Intelligence Applications Institute, University of Edinburgh*, UK.

3.4 Editorial Boards of Journals

- **Associate Editor** for the journal *Computer Vision and Image Understanding (Elsevier)* since 2019.
- **Associate Editor** for the journal *IEEE Transactions on Multimedia* since 2019.
- **Associate Editor** for the journal *Machine Vision and Applications (Springer)* since 2019.
- **Guest Editor** of the Special Issue “Adversarial Learning in Computer Vision” for the journal *Computer Vision and Image Understanding (Elsevier)*, 2018.
- **Guest Editor** of the Special Issue “Fine-grained Categorization in Ecological Multimedia” for the journal *Pattern Recognition Letters (Elsevier)*, 2016.
- **Guest Editor** of the Special Issue “Large Scale Data-Driven Evaluation in Computer Vision” for the journal *Computer Vision and Image Understanding (Elsevier)*, 2014.
- **Guest Editor** of the Special Issue “How Can Multimedia Help Ecology?” for the journal *Multimedia Systems Journal (Springer)*, 2014.
- **Guest Editor** of the Special Issue “Animal and Insect Behaviour Understanding in Image Sequences” for the journal *EURASIP Journal on Image and Video Processing (Springer)*, 2014.
- **Guest Editor** of the Special Issue “Multimedia in Ecology and Environment” for the journal *Ecological Informatics (Elsevier)*, 2013.
- **Guest Editor** of the Special Issue “Methods and Tools for Ground Truth Collection in Multimedia” for the journal *Multimedia Tools and Applications Journal (Springer)*, 2012.

- **Guest Editor** of the Special Issue “High Performance Computing in Computer Vision Applications” for the journal *International Journal of High Performance Computing Application (SAGE)*, 2012.
- **Member of the Editorial Board** for the journal *Ecological Informatics Journal (Elsevier)* since 2014.
- **Member of the Editorial Board** for the journal *Electronic Letters on Computer Vision and Image Analysis*, Computer Vision Center and Universitat Autònoma de Barcelona from 2015 to 2019.

3.5 Coordination and Relations at Scientific Conferences

3.5.1 Coordination of International Scientific Events

- **Area Chair** for the conference “European Conference on Computer Vision” 2024 (ECCV 2024).
- **Area Chair** for the conference “Winter Conference on Applications of Computer Vision” 2024 (WACV 2024).
- **Area Chair** for the conference “Computer Vision and Pattern Recognition” 2022 (CVPR 2022).
- **General Chair** of the “International Workshop on Visual observation and analysis of Vertebrate and Insect Behavior 2022 (VAIB 2022)”, held jointly with ICPR 2022.
- **Area Chair** for the “ACM Multimedia Conference 2020”.
- **General Chair** of ExpertLifeCLEF 2018 held jointly with Conference and Labs of the Evaluation Forum (CLEF).
- **General Chair** for the Workshop “4th IEEE International Workshop on Mobile Multimedia Computing (MMC 2017) - ICME 2017.
- **Video Proceedings Chair** for the conference “19th International Conference on Image Analysis and Processing” - ICIAP 2017.
- **General Chair** of SeaCLEF 2016 and 2017 Labs, held jointly with Conference and Labs of the Evaluation Forum (CLEF) 2016 and 2017.
- **General Chair** of the “Context of Experience: Recommending Videos Suiting a Watching Situation Task” for MediaEval 2016.
- **Area Chair** for the “Multimedia and Vision Track” - ACM Multimedia Conference 2016.
- **General Chair** of the “Context of Experience: Recommending Videos Suiting a Watching Situation Task” for the ”MediaEval Benchmarking Initiative for Multimedia Evaluation MediaEval 2015”.

- **General Chair** of the “International Workshop on Visual observation and analysis of Vertebrate and Insect Behavior 2016 (VAIB 2016)”, held jointly with the International Conference on Pattern Recognition 2016 (ICPR 2016).
- **Special session chair** for the “5th International Conference on Image Processing and Theory, Tools and Applications” IPTA 2015.
- **General Chair** of the workshop “Reliability of Social Multimedia Annotations” for MediaEval 2015.
- **General Chair** of the Fish Task for the “Life CLEF 2014 Lab”, held jointly with the conference CLEF 2014.
- **General Chair** of the “3rd ACM International Workshop on Multimedia Analysis for Ecological Data” held jointly with ACM Multimedia 2014.
- **General Chair** of the “International Workshop on Visual observation and analysis of Vertebrate and Insect Behavior 2014 (VAIB 2014)” held jointly with ICPR 2014.
- **General Chair** of the “2nd ACM International Workshop on Multimedia Analysis for Ecological Data” held jointly with ACM Multimedia 2013.
- **General Chair** of the special session “Image Processing and Pattern Recognition for Ecological Applications” for the IEEE International Conference on Image Processing (ICIP) 2013.
- **General Chair** of the “International Workshop on Video and Image Ground Truth for computer vision Applications VIGTA’13” - held jointly with ICVS 2013.
- **General Chair** of the “ACM International Workshop on Multimedia Analysis for Ecological Data” held jointly with ACM Multimedia 2012.
- **General Chair** of the “Special Session on High Performance Computing in Computer Vision Applications (HPC- CVA)” held jointly with IPTA 2012 conference.
- **General Chair** of the “First International Workshop on Visual Interfaces for Ground Truth Collection in Computer Vision Applications” held jointly with AVI 2012.

3.5.2 Participation in Scientific Conferences and/or Research Institutions

- **Keynote speaker** at the “International Conference on Machine Learning for Astrophysics - ML4Astro,” Catania, May 2022.
- **Keynote speaker** for the “School in AI: Deep Learning, Vision and Language for Industry - second edition,” Modena, 12-16 September 2022.
- **Keynote speaker** at the Workshop “Brain-Inspired Computing: From Neuroscience to Artificial Intelligence,” University of Modena and Reggio Emilia, October 2019.
- **Keynote speaker** for the “1st Summer School of Interdisciplinary Research on Brain Network Dynamics” - Organized by the Brandy Research Center, University of Trento, 2019.

- **Keynote speaker** at the “Automatic Affect Analysis and Synthesis (3AS)” workshop held jointly with the 19th Int. Conf. on Image Analysis and Processing (ICIAP) 2017, September 2017.
- **Keynote speaker** at the “Robust Methods for the Analysis of Images and Videos for Fisheries Stock Assessment Workshop,” organized by the National Research Council USA, Washington, USA, May 2014.
- **Keynote speaker** at the “Southeast Asia Joint Research and Training Program,” National Center on High-Performance Computing - Taiwan, November 2009.
- **Technical Seminar** on “Artificial Intelligence for Uncovering Perceptive and Cognitive User States in Automotive and Consumer Applications” - ST Microelectronics (all global locations), 2020.
- **Invited talk** at the Office of Naval Research (United States); talk title: “Understanding Human Visual Cortex for Adaptive Artificial Intelligence Methods.” Washington, DC, United States.
- **Invited talk:** “Human Machine Computer Vision Systems: Transferring Human Capabilities to Visual Classifiers,” at the City University of New York (CUNY), USA, New York, October 2017.
- **Invited talk:** “What Can Human Brain Do for Computer Vision?” at the Computer Vision Research Center, University of Central Florida (UCF), USA, Orlando, October 2017.
- **Invited talk:** “Computer vision for underwater video analysis: from fish detection to behavior understanding,” University of West Indies, Jamaica, October 2012.
- **Invited talk:** “A Motion Detection System Based on Statistical Object Modeling for Outdoor Applications,” University of Edinburgh, School of Informatics - CISA, Edinburgh, UK.

3.5.3 Moderation of International Events (Session Chair)

- **Session chair** for the oral session “Video Analysis & Understanding” at IEEE/CVF Computer Vision and Pattern Recognition 2022 (CVPR 2022), New Orleans, USA.
- **Session chair** for the oral session “Joint Approaches and Multi-Task Learning” at the 2021 IEEE 18th International Symposium on Biomedical Imaging (ISBI), Nice, France.
- **Session chair** for the oral session “Classification and Clustering II” at IEEE International Conference on Pattern Recognition (ICPR 2014), Stockholm, August 2014.
- **Session chair** for the session “Segmentation III” at IEEE International Conference on Image Processing (ICIP 2013), Melbourne, September 2013.
- **Session chair** for the session “Motion, Tracking and Stereo Vision” at the International Conference on Computer Vision Theory and Applications, VISAPP 2012, Rome, February 2012.
- **Session chair** for the International Conference on Health Informatics, HEALTH-INF 2011, Rome, January 2011.

3.6 Reviewing Activities for Scientific Articles

3.6.1 Journals

IEEE Transactions on Pattern Analysis and Machine Intelligence, International Journal of Computer Vision, IEEE Transactions on Neural Networks and Learning Systems, IEEE Transactions on Medical Imaging, IEEE Transactions on Multimedia, Pattern Recognition, Computer Vision and Image Understanding, IEEE Transactions on Circuits and Systems for Video, Technology Multimedia Tools and Applications, Machine Learning, Neurocomputing, Pattern Recognition Letters, Signal Processing, Sensors, Nature Scientific Reports, Signal, Image and Video Processing (SIVP), Journal of Electronic Imaging, IEEE Transactions on Systems, Man, and Cybernetics, Digital Signal Processing, Springer Plus, Sensors, EURASIP Journal on video and image processing, Briefings in Bioinformatics, Computers in Biology and Medicine, Medical Engineering and Physics (Elsevier), Ecological Informatics, Journal of Computer Science and Technology, IEEE Transactions on Intelligent Transportation System, Journal Optical Engineering, IEEE Transactions on Measurement and Instrumentation, International Journal of Advanced Robotic Systems, International Journal of High Performance, Concurrency and Computation: Practice and Experience.

3.6.2 Conferences

ACM Multimedia Conference (ACM-MM), International Conference in Computer Vision and Pattern Recognition (CVPR), International Conference in Computer Vision (ICCV), British Machine Vision Conference (BMVC), International Conference on Image Processing (ICIP), International Conference on Pattern Recognition (ICPR). Altre conferenze: 2nd Workshop on Computer Vision for Analysis of Underwater Imagery (CVAUI 2016), the 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC'16), 2016 International Workshop on Biological Network Analysis and Integrative Graph-Based Approaches, 1st International Workshop on Internet and Social media for Environmental Monitoring (ISEM 2016), 5th International Conference on Image Processing Theory, Tools and Applications (IPTA 2014), 22nd International Conference on Pattern Recognition 2014 (ICPR 2014), 2014 International Conference on Image Processing (ICIP 2014), 19th Iberoamerican Congress on Pattern Recognition (CIARP 2014), 4th International Conference on Image Processing Theory, Tools and Applications (IPTA 2014), 13th International Conference on Artificial Intelligence and Soft Computing (ICAISC 2014), 27th IEEE-EMBS International Symposium on Computer-Based Medical Systems (CBMS 2104), International Conferences on Biomedical and Health Informatics (BHI 2014), Computer Vision for Analysis of Underwater Imagery Workshop@ICPR 2014, Computer vision + ONTology Applied Cross-disciplinary Technologies (CONTACT)@ECCV 2014, Computer Vision Problems in Plant Phenotyping Workshop @ECCV 2014, International Workshop on Environmental Multimedia Retrieval 2014@ICMR 2014, 7th International Workshop on Biomolecular Network Analysis (IWBNA)@ BIBM 2014, 2013 International Conference on Image Processing (ICIP 2013), 18th Iberoamerican Congress on Pattern Recognition (CIARP 2013), 35th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC'13), 1st Biological Network Analysis and Applications in Translational and Personalized Medicine (BNA-M), 2012 International Conference on Image Processing Theory, Tools and Applications (IPTA 2012), 21st International Conference on Pattern Recognition (ICPR2012), 34th Annual International Conference of the Engineering in Medicine and Biology Society (EMBC 2012), 11th International Conference on Artificial Intelligence and Soft Computing (ICAISC 2012), 2012 IEEE Conference on Control, Systems& Industrial Informatics,

4th International Conference on Intelligent and Advanced Systems (ICIAS 2012), 5th International Workshop on Biomolecular Network Analysis (IWBNA 2012), 2012 IEEE Workshop Visual observation and analysis of animal and insect behaviour (VAIB 2012, 2011 Scandinavian Conference on Image Analysis (SCIA 2011), 33rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC 2011), 20th International Conference on Pattern Recognition (ICPR 2010), 32nd Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC 2010), 10th International Conference on Artificial Intelligence and Soft Computing, ICAISC 2010, 31st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC 2009), 30th Annual International Conference of the IEEE Engineering in Medicine and Biology Society

3.7 Technology Transfer

3.7.1 Patents

- F. Rundo, R.E. Sarpietro, P. Giuffre', M. Scropo, G. Randazzo, S. Coffa, D. Vinciguerra, **C. Spampinato**, "AI-based Intelligent EWS Management System", USA Patent Nr. 18068944, 20.12.2022;
- F. Rundo, M. Calabretta, S.Coffa, M.M. Branciforte, **C. Spampinato**, "Jacobian Regularized Power Electronic Device Monitoring", USA Patent Nr. 18472684, 22.09.2023;
- F. Rundo, S. Conoci, **C. Spampinato**, "An Electrophysiological Signal Processing Method, Corresponding System, Vehicle and Computer Program Product", USA Patent Nr. 17156052, 22.01.2021
- F. Rundo, S. Conoci, **C. Spampinato**, "A Method of Processing Electrophysiological Signals to Compute a Virtual Vehicle Key, Corresponding Device, Vehicle and Computer Program Product", USA Patent Nr. 17009503, 01.09.2020

3.8 Awards

- **Top 2% Scientists**, ranking by Stanford University and Elsevier, for both annual results (2020/2021/2022) and "Long Career." [<https://elsevier.digitalcommonsdata.com/datasets/btchxktzyw/6>]
- "**Best Computer Science Scientists**", ranking by Research.com. Ranked 8189 globally and 230 in Italy.[<https://research.com/scientists-rankings/computer-science>]
- **Unrestricted Research Grant Gift** of \$10,000 USD from Adobe.
- **Unrestricted Research Grant Gift** of \$60,000 USD from Intel Corporation - Intelligent System Lab (Santa Clara, California) for research on "Human Brain Understanding and Decoding."
- **Winner of the e-Prevention challenge**, part of the Grand Challenges organized by the International Conference on Acoustics, Speech, & Signal Processing (ICASSP) 2023. Presented article: "Ensemble and personalized transformer models for subject identification and relapse detection in e-Prevention Challenge," in collaboration with Salvo Calcagno, Raffaele Mineo, and Daniela Giordano.

- **Best Paper Award** for the article “Semantic Segmentation of radio-astronomical images” at the International Workshop on Artificial Intelligence and Pattern Recognition 2021. Work with Renato Sortino and Carmelo Pino.
- Beneficiary of the **Fund for the Financing of Basic Research Activities (FFABR)** based on scientific results through ANVUR evaluation. [<http://www.anvur.org/attachments/article/1204/BeneficiariFFABRRicerca~.pdf>]
- **“Brave New Ideas” paper** for the article “Brain2Image: Converting Brain Signals into Images,” MM’17 ACM Multimedia Conference, Mountain View, USA, October 2017. Work done in collaboration with Isaak Kavasidis and Simone Palazzo.
- Winner of the **HPC-EUROPA** and **HPC-EUROPA2 grants** to conduct research at the School of Informatics, University of Edinburgh, UK.
- Winner of the grant for the **Summer Program in Taiwan 2008 for Italian Graduate Students**.
- **Best Contribution** at the 7th Workshop From Object to Agents, WOA, Catania, Italy, September 2006.

3.9 Membership in Scientific Societies

- **Member of the ELLIS Society.** The European Laboratory for Learning and Intelligent Systems is a European network of excellence in artificial intelligence that focuses on fundamental science, technical innovation, and social impact. [<https://ellis.eu/>]
- **Member of the CVPL Society.** CVPL is the Italian association for research in Computer Vision, Pattern Recognition, and Machine Learning. [<https://www.cvpl.it/>]
- **Member of the Computer Vision Foundation.**
- **Member of the IEEE Society.**

4 Service to the profession

4.1 Institutional/Management Activities

- Member of the scientific committee of the FAIR foundation – “Future of Artificial Intelligence Research”. [<https://future-ai-research.it/comitatoscientifico/>]
- Delegate for Public Engagement, Outreach and Patents for the Department of Electrical, Electronic, and Computer Engineering at the University of Catania.
- Member of the Quality Committee of the Department of Electrical, Electronic, and Computer Engineering at the University of Catania. [<http://www.dieei.unict.it/it/content/commissione-qualit%C3%A0-di-dipartimento>]
- Member of the Management Committee (substitute) for the project “High-Performance Modelling and Simulation for Big Data Applications (cHiPSet)” COST Actions IC1406. 2015-2019. [<http://chipset-cost.eu/index.php/management-committee/>]

4.2 Service Activities

- Evaluator for projects for European Cooperation in Science and Technology (COST Association).
- Evaluator for projects for the French National Research Agency (ANR).
- Evaluator for projects for the Swiss National Science Foundation (SNSF).
- Evaluator for the FAR 2019 Call of the University of Modena and Reggio Emilia.
- Evaluator for the FAR 2023 Call of the University of Modena and Reggio Emilia.
- Member of the technical-scientific committee for the Project “Living Lab delle Aci” PO FESR SICILIA 2014-2020.

5 Publications

5.1 Journals

- [J1] M. Pennisi, F. Proietto Salanitri, G. Bellitto, B. Casella, M. Aldinucci, S. Palazzo, **C. Spampinato**. *FedER: Federated Learning through Experience Replay and privacy-preserving data synthesis*, COMPUTER VISION AND IMAGE UNDERSTANDING, Volume 238, 2024
- [J2] G. Vecchio, L. Prezzavento, C. Pino, F. Rundo, S. Palazzo, **C. Spampinato**. *MeT: A Graph transformer for semantic segmentation of 3D meshes*, COMPUTER VISION AND IMAGE UNDERSTANDING, 235, art. no. 103773, 2023.
- [J3] R. Sortino, S. Palazzo, F. Rundo, **C. Spampinato**. *Transformer-based image generation from scene graphs*, COMPUTER VISION AND IMAGE UNDERSTANDING, 233, art. no. 103721, 2023.
- [J4] C. Pino, ..., Spampinato, C., Rundo, F. *Intelligent Traction Inverter in Next Generation Electric Vehicles: The Health Monitoring of Silicon-Carbide Power Modules*, IEEE TRANSACTIONS ON INTELLIGENT VEHICLES, pp. 1-20, 2023.
- [J5] S. Riggi, D. Magro, R. Sortino, A. De Marco, ..., **C. Spampinato**, K. Zarb Adami. *Astronomical source detection in radio continuum maps with deep neural networks*, ASTRONOMY AND COMPUTING, Volume 42, January 2023
- [J6] R. E. Sarpietro, C. Pino, S. Coffa, A. Messina, S. Palazzo, S. Battiato, **C. Spampinato**, F. Rundo, *Explainable Deep Learning System for Advanced Silicon and Silicon Carbide Electrical Wafer Defect Map Assessment*, IEEE ACCESS, Volume 10, September 2022
- [J7] Colonnelli I., Aldinucci M., Cantalupo B., Padovani L., Rabellino S., **Spampinato C.**, Morelli R., Di Carlo R., Magini N., Cavazzoni C., *Distributed workflows with Jupyter*, FUTURE GENERATION COMPUTER SYSTEMS, Volume 128, March 2022, Pages 282-298.
- [J8] Chiacchio F, D’Urso D, Oliveri LM, Spitaleri A, **Spampinato C**, Giordano D. *A Non-Fungible Token Solution for the Track and Trace of Pharmaceutical Supply Chain*. APPLIED SCIENCES, Volume 12, 2022.
- [J9] Bellitto G., Proietto Salanitri F., Palazzo S., Rundo F., Giordano D., **Spampinato C.**, *Hierarchical Domain-Adapted Feature Learning for Video Saliency Prediction*, INTERNATIONAL JOURNAL OF COMPUTER VISION, Volume 129 (12), pp. 3216 – 3232, 2021.
- [J10] Pennisi M., Kavasidis I., **Spampinato C.**, Schinina V., Palazzo S., Salanitri F.P., Bellitto G., Rundo F., Aldinucci M., Cristofaro M., Campioni P., Pianura E., Di Stefano F., Petrone A., Albarello F., Ippolito G., Cuzzocrea S., Conoci S., *An explainable AI system for automated COVID-19 assessment and lesion categorization from CT-scans*, ARTIFICIAL INTELLIGENCE IN MEDICINE, Volume 118, 2021.
- [J11] S. Palazzo, F. Murabito, C. Pino, F. Rundo, D. Giordano, M. Shah, **C. Spampinato**, *Exploiting Structured High-Level Knowledge for Domain-Specific Visual Classification*, PATTERN RECOGNITION (Elsevier), 2021.

- [J12] S. Palazzo, **C. Spampinato**, I. Kavasidis, D. Giordano, J. Schmidt, M. Shah, *Decoding Brain Representations by Multimodal Learning of Neural Activity and Visual Features*, IEEE TRANSACTIONS ON PATTERN ANALYSIS AND MACHINE INTELLIGENCE, Volume 43, Issue 11, 2021.
- **Impact factor** 2021: 23.6
- [J13] Rundo, F, Conoci, S, Spampinato, C, Leotta, R, Trenta, F, Battiato, S., *Deep Neuro-Vision Embedded Architecture for Safety Assessment in Perceptive Advanced Driver Assistance Systems: The Pedestrian Tracking System Use-Case*, FRONTIERS IN NEUROINFORMATICS, 15:667008, 2021
- [J14] **C. Spampinato**, S. Palazzo, P. D’Oro, D. Giordano, M. Shah, *Adversarial Framework for Unsupervised Learning of Motion Dynamics in Videos*, INTERNATIONAL JOURNAL OF COMPUTER VISION, Vol. 128, 1378–1397 (2020).
- [J15] G. Vecchio, S. Palazzo, F. Rundo, D. Giordano, **C. Spampinato**, *MASK-RL: Multi-Agent video object Segmentation framework through Reinforcement Learning*. IEEE TRANSACTIONS ON NEURAL NETWORKS AND LEARNING SYSTEMS, Volume: 31, 2020, Page(s): 5103 – 5115
- [J16] Sekhar Roy S., Chopra R., Chang Lee K., **Spampinato C.**, Mohammadi-ivatlood B., *Random forest, gradient boosted machines and deep neural network for stock price forecasting: A comparative analysis on South Korean companies*, INTERNATIONAL JOURNAL OF AD HOC AND UBIQUITOUS COMPUTING, Vol. 33, 2020
- [J17] Rundo F., **Spampinato C.**, Conoci S., *Ad-Hoc Shallow Neural Network to Learn Hyper Filtered PhotoPlethysmoGraphic (PPG) Signal for Efficient Car-Driver Drowsiness Monitoring*, ELECTRONICS, 2019
- [J18] Rundo F., **Spampinato C.**, Banna GL., Conoci S., *Advanced Deep Learning Embedded Motion Radiomics Pipeline for Predicting Anti-PD-1/PD-L1 Immunotherapy Response in the Treatment of Bladder Cancer: Preliminary Results*, ELECTRONICS, 2019
- [J19] F. Murabito, **C. Spampinato**, S. Palazzo, D. Giordano, K. Pogorelov, M. Riegler, *Top-down Saliency Detection Driven by Visual Classification*, COMPUTER VISION AND IMAGE UNDERSTANDING, 2018
- [J20] **C. Spampinato**, S. Palazzo, D. Giordano, *Gamifying Video Object Segmentation*, IEEE TRANSACTIONS ON PATTERN ANALYSIS AND MACHINE INTELLIGENCE, Vol. 39, N. 10, 2017.
- [J21] **C. Spampinato**, S. Palazzo, D. Giordano, M. Aldinucci, R. Leonardi, *Deep learning for automated skeletal bone age assessment in X-ray images*, MEDICAL IMAGE ANALYSIS, vol. 36, p. 41-51, 2017
- [J22] D. Giordano, I. Kavasidis, **C. Spampinato**. *Modeling Skeletal Bone Development with Hidden Markov Models*. COMPUTER METHODS AND PROGRAMS IN BIOMEDICINE, Volume 124, 2016, Pages 138-147

- [J23] D. Giordano, S. Palazzo, **C. Spampinato**, *A diversity-based search approach to support annotation of a large fish image dataset*, MULTIMEDIA SYSTEMS, vol. 22, p. 725-736, 2016. DOI: 10.1007/s00530-015-0491-4
- [J24] **C. Spampinato**, S. Palazzo, P.H. Joalland, S. Paris, H. Glotin, K. Blanc, D. Lingrand, F. Precioso, *Fine-Grained Object Recognition in Underwater Visual Data*, MULTIMEDIA TOOLS AND APPLICATIONS, 2016, Volume 75, Issue 3, pp 1701–1720
- [J25] M. Aldinucci, G. Peretti Pezzi, M. Drocco, **C. Spampinato**, and M.Torquati, *Parallel Visual Data Restoration on Multi-GPGPUs using Stencil-Reduce Pattern*, INTERNATIONAL JOURNAL OF HIGH PERFORMANCE COMPUTING APPLICATIONS, Volume: 29 issue: 4, page(s): 461-472, 2015
- [J26] D. Giordano, I. Kavasidis, S. Palazzo, **C. Spampinato**, *Nonparametric Label Propagation using Mutual Local Similarity in Nearest Neighbors*, COMPUTER VISION AND IMAGE UNDERSTANDING, vol. 131, p. 116-127, 2015. DOI: 10.1016/j.cviu.2014.06.005
- [J27] **C. Spampinato**, S. Palazzo, I. Kavasidis, *A texton-based kernel density estimation approach for background modeling under extreme conditions*, COMPUTER VISION AND IMAGE UNDERSTANDING, Volume 122, Pages 74-83, 2014. DOI: 10.1016/j.cviu.2013.12.003
- [J28] **C. Spampinato**, I. Kavasidis, M. Aldinucci, C. Pino, D. Giordano and A. Faro, *Discovering Biological Knowledge by Integrating High Throughput Data and Scientific Literature on the Cloud*, CONCURRENCY AND COMPUTATION: PRACTICE AND EXPERIENCE, Volume 26, Issue 10, Pages 1771-1786, 2014.
- [J29] **C. Spampinato**, E. Beauxis-Aussalet, S. Palazzo, C. Beyan, J. van Ossenbruggen, J. He, B. Boom and X. Huang, *A rule-based event detection system for real-life underwater domain*, MACHINE VISION AND APPLICATIONS, Volume 25, Issue 1, pp 99-117, 2014.
- [J30] I. Kavasidis, S. Palazzo, R. Di Salvo, D. Giordano, **C. Spampinato**. *An innovative web-based collaborative platform for video annotation*, MULTIMEDIA TOOLS AND APPLICATIONS, vol. 70, p. 413-432, 2014.
- [J31] B. Boom, J. He, S. Palazzo, P. Huang, C.Beyan, H. Chou, F-P. Lin, **C. Spampinato**, B. Fisher, *A research tool for long-term and continuous analysis of fish assemblage in coral-reefs using underwater camera footage*, ECOLOGICAL INFORMATICS, Volume 23, 2014, Pages 83-97
- [J32] M. Aldinucci, M. Torquati, **C. Spampinato**, C. Calcagno, M. Drocco and M. Coppo, *Parallel stochastic systems biology in the cloud*, BRIEFINGS IN BIOINFORMATICS, Volume 15, Issue 5, Pages 798–813, 2014.
- [J33] **C. Spampinato**, M. Pennisi, E. Aguglia, C. Concerto, R. Bella, M. Cantone, G. Lanza, G. Pennisi, D. Giordano and I. Kavasidis, *Transcranial Magnetic Stimulation in the Assessment of Motor Cortex Excitability and Treatment of Drug-Resistant Major Depression*, IEEE TRANSACTIONS ON NEURAL SYSTEMS AND REHABILITATION ENGINEERING, Volume 21, Issue 3, Pages 391-403, 2013.

- [J34] S. Dietze, H. Yu, D. Giordano, **C. Spampinato**, N. Dovrolis, E. Kalkoudi, D. Taibi, M. Hendrix and A. Protopsaltis, *Socio-semantic Integration of Educational Resources - The Case of the mEducator Project*, JOURNAL OF UNIVERSAL COMPUTER SCIENCE, Volume 19, 2013.
- [J35] D. Giordano, I. Kavasidis, **C. Spampinato**, R. Bella, G. Pennisi and M. Pennisi, *An Integrated Computer-Controlled System for Assisting Researchers in Cortical Excitability Studies by using Transcranial Magnetic Stimulation*, COMPUTER METHODS AND PROGRAMS IN BIOMEDICINE, Volume 107, Issue 1, Pages 4-15, 2012.
- [J36] **C. Spampinato**, S. Palazzo, B. Boom, J. van Ossenbruggen, I. Kavasidis, R. Di Salvo, F. Lin, D. Giordano, L. Hardman and B. Fisher, *Understanding Fish Behavior during Typhoon Events in Real-Life Underwater Environments*, MULTIMEDIA TOOLS AND APPLICATIONS, Volume 70, Issue 1, pp 199-236, 2012.
- [J37] Faro, D. Giordano and **C. Spampinato**, *Combining Literature Text Mining with Microarray Data: Advances for System Biology Modeling*, BRIEFINGS IN BIOINFORMATICS, Volume 13, Issue 1, Pages 61-82, 2012.
- [J38] A. Faro, D. Giordano, **C. Spampinato**, *Adaptive Background Modeling Integrated With Luminosity Sensors and Occlusion Processing for Reliable Vehicle Detection*, IEEE TRANSACTIONS ON INTELLIGENT TRANSPORTATION SYSTEMS, vol. 12, p. 1398-1412, 2011.
- [J39] A. Faro, D. Giordano, **C. Spampinato**, S. Ullo and A. Distefano, *Basal Ganglia Activity Measurement by Automatic 3D Striatum Segmentation in SPECT images*, IEEE TRANSACTIONS ON INSTRUMENTATION AND MEASUREMENT, Volume 60, Oct 2011, Pages 3269-3280.
- [J40] Faro A., Giordano D., **Spampinato C.**, Integrating location tracking, traffic monitoring and semantics in a layered ITS architecture, IET INTELLIGENT TRANSPORT SYSTEMS, Volume 5, 2011
- [J41] D. Giordano, **C. Spampinato**, G. Scarciofalo and R. Leonardi, *An Automatic System for Skeletal Bone Age Measurement by Robust Processing of Carpal and Epiphysial/Metaphysial Bones*, IEEE TRANSACTIONS ON INSTRUMENTATION AND MEASUREMENT, Volume 59, Issue 10, Oct 2010, Pages 2539-2553.
- [J42] A. Faro, D. Giordano, F. Maiorana, **C. Spampinato**, *Discovering Genes and Diseases Associations from Specialized Literature using GRID*, IEEE TRANSACTIONS ON INFORMATION TECHNOLOGY IN BIOMEDICINE, Volume 13, p. 554-560, 2009.
- [J43] A. Faro, D. Giordano, **C. Spampinato**, *Evaluation of the Traffic Parameters in a Metropolitan Area by Fusing Visual Perceptions and CNN Processing of Webcam Images*, IEEE TRANSACTIONS ON NEURAL NETWORKS, vol. 19, p. 1108-1129, 2008.

5.2 Journals (under review)

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- [R2] A. Faro, D. Giordano, **C. Spampinato**, *Terrain Traversability Prediction through Self-Supervised Learning and Unsupervised Domain Adaptation on Synthetic Data*, AUTONOMOUS ROBOTS
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- [R3] G. Bellitto, R. Sortino R., P. Spadaro, S. Palazzo, F. Proietto Salanitri, G. Fiameni, E. Gavves, C. Spampinato. *ViTO: Vision Transformer Optimization via knowledge distillation on decoders*. IEEE ACCESS. Second review round.
- [R4] G. Bellitto , F. Proietto Salanitri, M. Pennisi, M. Boschini, L. Bonicelli, A. Porrello, S. Calderara, S. Palazzo, **C. Spampinato**, *Selective attention-based modulation for continual learning*. IEEE TRANSACTIONS ON PATTERN ANALYSIS AND MACHINE INTELLIGENCE.
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- [R7] R. Sortino, T. Ceconello, ..., **C. Spampinato**, *RADiff: Controllable Diffusion Models for Radio-Astronomical Maps Generation*, IEEE TRANSACTIONS ON ARTIFICIAL INTELLIGENCE

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- [M2] Leonardi R., Lo Giudice A., Farronato M., Ronsivalle V., Allegrini A., Musumeci G., Spampinato C., *Fully automatic segmentation of sinonasal cavity and pharyngeal airway based on convolutional neural networks*, AMERICAN JOURNAL OF ORTHODONTICS AND DENTOFACIAL ORTHOPEDICS, Volume 159, Issue 6, 2021
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- [M4] Leonardi R., Lo Giudice A., Isola G., Spampinato C., *Deep learning and computer vision: Two promising pillars, powering the future in orthodontics*, SEMINARS IN ORTHODONTICS, Volume 27, 2021
- [M5] Garozzo R., Santagati C., **Spampinato C.**, Vecchio G., *Knowledge-based generative adversarial networks for scene understanding in Cultural Heritage*, JOURNAL OF ARCHAEOLOGICAL SCIENCE: REPORTS, Volume 35, 2021
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- [C4] G. Castagnolo, **C. Spampinato**, F. Rundo, D. Giordano, S. Palazzo, A baseline on continual learning methods for video action recognition, *2023 IEEE International Conference on Image Processing (ICIP)*, Kuala Lumpur, Malaysia, 8-11 October, 2023
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Indici bibliometrici	
Total citations (source: Google Scholar)	6967
Average citations per paper (241 papers)	28.90
Total impact factor for journal papers	292.80
Average impact factor for journal papers	6.81
Hirsch-Index (source: Google Scholar)	43

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