PERSONAL INFORMATION

Riccardo Rosati

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Gender Male | Date of birth 13 December 1992 | Nationality Italian

WORK EXPERIENCE

January 2023 – Present

PostDoc Researcher

Department of Information Engineering, Università Politecnica delle Marche, Ancona (Italy)

July 2019 – October 2019

Research fellow

Department of Information Engineering, Università Politecnica delle Marche, Ancona (Italy)

Analysis of Artificial Intelligence systems applied in biomedical field through the analysis of images by Deep Learning methods within the project "IOT Intelligent Oncology Telecare".

September 2018 – February 2019

Research Internship

Division of Image Processing, Leiden University Medical Center, Leiden (Netherlands)

Development of Convolutional Neural Networks (CNN) and other Deep Learning techniques to build models for automated segmentation of cardiovascular anatomical region and classification tasks in cardiac Magnetic Resonance Imaging (MRI) 3D data.

EDUCATION

November 2019 – October 2022

PhD in Information Engineering

Academic sector: ING-INF05

Department of Information Engineering, Università Politecnica delle Marche, Ancona (Italy)

Topic: "Embedded Automation and Edge Computing for Industry 4.0".

April 2021 – September 2021

Visiting PhD internship at AYRNA group

Department of Computer Science and Numerical Analysis, University of Córdoba, Córdoba (Spain) - Remote collaboration (online)

Topic: "Deep ordinal regression methodologies".

November 2019 – February 2020

Professional Engineering Qualification

Section A - Information Technology engineering

Università Politecnica delle Marche, Ancona (Italy)

State examination for qualification as Professional Engineer in the second session 2019.

September 2015 – July 2018	**Master's Degree in Biomedical Engineering (110/110 cum laude)**

LM-21 - Course provided in English language

Università Politecnica delle Marche, Ancona (Italy)

Thesis title: "Measurement of Activity of Daily Living: a simulation tool for the optimization of a Passive Infrared sensor network in Smart Home environment".

September 2011 – July 2015	**Bachelor's Degree in Biomedical Engineering (99/110)**

L-8

Università Politecnica delle Marche, Ancona (Italy)

Thesis title: "Development and optimization of a no contact measurement procedure for respiratory flow".

September 2006 - June 2011	**Secondary school diploma: Scientific High School (100/100)**

Liceo Scientifico G.Torelli, Pergola (PU) (Italy)

TRAINING

22-26 August 2022	**ACDL 2022: 5th Advanced Online & Onsite Course on Data Science & Machine Learning**

Interdisciplinary Centre of Advanced Studies (ICAS), Certosa di Pontignano (Italy)

26-30 July 2021	**DEEPLEARN2021: 4th International School on Deep Learning**

Institute for Research Development, Training and Advice [IRDTA], Gran Canaria (Spain)

13-17 July 2020	**Deep Learning: A Hands-on Introduction**

Università degli Studi di Genova (online)

29 June - 03 July 2020	**AI-DLDA 2020: International Summer School on Artificial Intelligence**

Università degli Studi di Udine (online)

13-17 January 2020	**BigDat 2020: 6th International Winter School on Big Data**

Università Politecnica delle Marche, Ancona (Italy)

TEACHING ACTIVITY

Teaching assistant

Customer Intelligence & Big Data (Professors Emanuele Frontoni/Luca Romeo) - Course provided in English language

Master's Degree course in Marketing - Luiss Guido Carli, Roma (Italy), A.Y. 2022/23

Lecturer at DataLab courses - IFOA

14-27 July, 09-12 November 2020 (online)

Teaching-support activity

Information Technologies and Techniques (Professor Luca Romeo)

Bachelor's Degree course in Industrial and Information Systems - Università Politecnica delle Marche, Pesaro (Italy), A.Y. 2020/21, 2021/22

Computer Vision & Deep Learning (Professor Emanuele Frontoni)

Master's Degree course in Computer Science - Università Politecnica delle Marche, Ancona (Italy), A.Y. 2019/20, 2020/21, 2021/22

STUDENT PROJECT SUPERVISION

Courses - Università Politecnica delle Marche
— Computer Vision & Deep Learning (Professor Emanuele Frontoni)
— Information Technologies and Techniques (Professor Luca Romeo)

Courses - Università di Macerata
— Informatica Multimediale e Intelligenza Artificiale (Professor Emanuele Frontoni)

RESEARCH PROJECTS

International Research Projects

01-06-2019 to date	Member of the research unit "Development and testing of Machine learning algorithms for estimating water demand in urban and peri-urban areas" within the European project DWC (Digital Water City), Horizon 2020 framework, Grant agreement ID: 820954 (https://cordis.europa.eu/project/id/820954/it) on behalf of the UNIVPM Local Unit coordinator Prof. Francesco Fatone
01-06-2019 to date	Member of the research unit "DeepReality: Automatic Content Generation for eXtended Reality Applications" within the European project XR4ALL, Horizon 2020 framework, Grant agreement ID: 825545 on behalf of the UNIVPM Local Unit coordinator Prof. Roberto Pierdicca

Regional Research Projects

07-2017 to 07-2018	Member of the research unit of the European AAL project "eWare - Early Warning Accompanies Robotics Excellence" (September 2017 - July 2018) as a trainee in the Department of Industrial Engineering and Mathematical Sciences, Università Politecnica delle Marche.
2019 to date	Member of the research unit "4USER Project" (User and Product Development: from Virtual Experience to Model Regeneration) funded on the POR MARCHE FESR 2014 -2020 -ASSE 1 -OS 1 - ACTION 1.1-INT. 1.1.1. Promotion of industrial research and experimental development in the areas of smart specialisation -LINEA 2 -Bando 2019, approved with DDPF 293 of 22/11/2019.
2021 to date	Member of the research unit "Smart Manufacturing Machine with Predictive Lifetime Electronic maintenance (SIMPLE)" funded by Ministero dello Sviluppo Economico (Italy) - Fondo per la Crescita Sostenibile - Accordi per l'innovazione di cui al D.M. 24 maggio 2017.

SCIENTIFIC SERVICE

Program Committee member

CIS 2022

Workshop Chair

2nd Italian Workshop on Artificial Intelligence and Applications for Business and Industries (AIABI)- co-located with AI*IA 2022

International Conference reviewer

ICPR 2020, CDMake 2021, CIS 2022, MESA 2022, ICRA 2023

International Journal reviewer

Frontiers in Computer Science, IEEE Access, BMC Medical Research Methodology, Medical & Biological Engineering & Computing (MBEC), Journal of Intelligent Manufacturing (JIMS), Computers in Industry, Multimedia Tools and Applications

PATENT

National patent (pending)

Vision System based on Artificial Intelligence for Aesthetic Quality Control". Patent on a wood quality system (Patent application for Invention submitted in 2021 - Applicants: Benelli Armi SPA, Sinergia Consulenze SRL, Università Politecnica delle Marche - Inventors: Frontoni Emanuele, Romeo Luca, Rosati Riccardo)

PERSONAL SKILLS

Mother tongue   Italian

Other languages

UNDERSTANDING		SPEAKING		WRITING
Listening	Reading	Spoken interaction	Spoken production	

English	B2	C1	B2	B1	B2

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2: Proficient user
Common European Framework of Reference (CEF) level

Communication skills
— Good communication skills;
— Excellent predisposition to work and collaborate in groups developed during university studies;
— Intercultural skills: I am experienced at working in a multicultural environment;

Organisational / managerial skills
— Flexibility and ability to adapt in new environments and work situations;
— Reliability and autonomous organization capacity;

Research skills	— Availability and interest in learning and exploring new topics; — Ability to draft scientific reviews and papers; — Ability to synthesis and presentation of results;
Digital skills	— Operating Systems: Ubuntu, Mac OS X, Windows; — Programming Languages: Matlab, Python; — Libraries and Frameworks: Statistics and Machine Learning Toolbox, Signal Processing Toolbox, GUIDE for GUI development (Matlab); Numpy, Pandas, Sklearn, Scipy, Tensorflow, Keras, PyTorch and other toolkits for Deep Learning (Python); — Applications and programs: Aplysia Cardiovascular Lab, ECGSIM, MASS. Basic knowledge of Simulink, LabView and Docker;
Other skills	Pianist and music lover. Participation in theater workshops with final performance. Sportsman, football player and runner.
Driving licence	B

ADDITIONAL INFORMATION

Certifications	ECDL (European Computer Driving Licence) certificate

PUBLICATIONS

Journal publications:

Vargas, V.M., Gutiérrez, P.A., **Rosati, R.**, Romeo L., Frontoni, E., & Hervás-Martínez, C. (2023). Deep learning based hierarchical classifier for weapon stock aesthetic quality control assessment, Computers in Industry, 144, 103786

Rosati, R., Romeo, L., Vargas, V. M., Gutiérrez, P. A., Hervás-Martínez, C., & Frontoni, E. (2022). A novel deep ordinal classification approach for aesthetic quality control classification. Neural Computing and Applications, pp. 1-15, doi: 10.1007/s00521-022-07050-6

Rosati, R., Romeo, L., Cecchini, G., Tonetto, F., Viti, P., Mancini, A., & Frontoni, E. (2022). From knowledge-based to big data analytic model: a novel IoT and machine learning based decision support system for predictive maintenance in Industry 4.0. Journal of Intelligent Manufacturing, pp. 1-15, doi: 10.1007/s10845-022-01960-x

Rosati, R., Romeo, L., Silvestri, S., Marcheggiani, F., Tiano, L., & Frontoni, E. (2020). Faster R-CNN approach for detection and quantification of DNA damage in comet assay images. Computers in Biology and Medicine, vol. 123, pp. 103912, ISSN: 0010-4825, doi: 10.1016/j.compbiomed.2020.103912

Rosati, R., Romeo, L., Goday, C. A., Menga, T., & Frontoni, E. (2020). Machine Learning in Capital Markets: Decision Support System for Outcome Analysis. IEEE Access, vol. 8, pp. 109080-109091, ISSN: 2169-3536, doi: 10.1109/ACCESS.2020.3001455

Conference proceedings:

Rosati, R., Romeo, L., Vargas, V.M., Gutiérrez, P.A., Hervás-Martínez, C., Bianchini, L., Capriotti, A., Capparuccia, R. & Frontoni, E. (2022). Predictive Maintenance of ATM machines by modelling Remaining Useful Life with Machine Learning techniques. In 17th International Conference on Soft Computing Models in Industrial and Environmental Applications.

Pauls, A., Romeo, L., **Rosati, R.**, Zingaretti, P., & Kuznetsov, A. (2022). Deep Learning Model for Detecting Copy-Move Attack in Images: Testing and Verification. In Next Generation Cybersecurity Systems and Applications 2022.

Pierdicca, R., Tonetto, F., Mameli, M., **Rosati, R.**, & Zingaretti, P. (2022). Can AI Replace Conventional Markerless Tracking? A Comparative Performance Study for Mobile Augmented Reality Based on Artificial Intelligence. In International Conference on Extended Reality (pp. 161-177). Springer, Cham.

Rosati, R., Romeo, L., Cecchini, G., Tonetto, F., Perugini, L., Ruggeri, L., Viti, P., Frontoni, E. (2021). Bias from the Wild Industry 4.0: Are We Really Classifying the Quality or Shotgun Series?, In: Del Bimbo A. et al. (eds) Pattern Recognition. ICPR International Workshops and Challenges. ICPR 2021. Lecture Notes in Computer Science, vol 12664. Springer, Cham.

Manilii, A., Lucarelli, L., **Rosati, R.**, Romeo, L., Mancini, A., Frontoni, E. (2021). 3D Human Pose Estimation Based on Multi-Input Multi-Output Convolutional Neural Network and Event Cameras: A Proof of Concept on the DHP19 Dataset. In Pattern Recognition. ICPR International Workshops and Challenges: Virtual Event, January 10–15, 2021, Proceedings, Part I (pp. 14-25). Springer International Publishing.

Pazzaglia, G., Martini, M., **Rosati, R.**, Romeo, L., Frontoni, E. (2021). A Deep Learning-Based Approach for Automatic Leather Classification in Industry 4.0. In ICPR Workshops (4) (pp. 662-674).

Casaccia, S., **Rosati, R.**, Scalise, L., Revel, G. M. (2020). Measurement of Activities of Daily Living: a simulation tool for the optimisation of a Passive Infrared sensor network in a Smart Home environment. In 2020 IEEE International Instrumentation and Measurement Technology Conference (I2MTC) (pp. 1-6). IEEE.

A. Ferri, **R. Rosati**, M. Bernardini, L. Gabrielli, S. Casaccia, L. Romeo, A. Monteriù, E. Frontoni. Towards the Design of a Machine Learning-based Consumer Healthcare Platform powered by Electronic Health Records and measurement of Lifestyle through Smartphone Data. IEEE 23rd International Symposium on Consumer Technologies. 2019.

A. Agostinelli, E. Braccili, E. Marchegiani, **R. Rosati**, A. Sbrollini, L. Burattini, M. Morettini, F. Di Nardo, S. Fioretti, L. Burattini. Statistical baseline assessment in cardiotocography. Proc. 38th Annu. Int. Conf. IEEE Engineering in Medicine and Biology Society. 2017.

Book chapters:

Romeo, L., **Rosati, R.**, & Frontoni, E. (2022). Decision Support System Based on Deep Learning for Improving the Quality Control Task of Rifles: A Case Study in Industry 4.0. In Machine Learning and Artificial Intelligence with Industrial Applications (pp. 63-77). Springer, Cham. doi: 10.1007/978-3-030-91006-8_3

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