

# Francesco BIANCONI

*Curriculum vitae<sup>1</sup>*

## Office

Department of Engineering  
Università degli Studi di Perugia  
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## Home

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## Personal details

Born: 17 July 1971, Perugia, Italy

Gender: Male

Citizenship: Italian

## Education

### University degrees

- Doctor of Philosophy, *Computer-aided Mechanical Design*  
Università degli Studi di Perugia, Perugia, Italy Jan. 2001
- Master of Engineering, *Mechanical Engineering*  
Università degli Studi di Perugia, Perugia, Italy Apr. 1997

### Other courses

- *Applied Data Science Specialization*, IBM/Coursera Jun. 2020

## Languages

- English: Proficient
  - Cambridge CB CPE (grade B – 219/230) Nov. 2021
  - Cambridge CB CAE (grade A – 81/100) Apr. 2013
  - iBT TOEFL (104/120) Dec. 2011
- Spanish: Advanced
  - DELE intermediate (95/100) May 2006
- Italian: Native

<sup>1</sup>Last updated: January 14, 2026

## IT & Programming skills

- Programming languages & VCS
  - C, C++, Java, Python and Git
- Digital typesetting & office automation
  - Microsoft Excel, Microsoft Word and L<sup>A</sup>T<sub>E</sub>X
- Scientific packages & data visualisation tools
  - Matlab, Mathematica and Tableau
- CAD/CAE
  - Autodesk AutoCAD, Autodesk Inventor and SolidWorks

## Employment

- *Associate professor*, Department of Engineering, Università degli Studi di Perugia, Italy  
Jul. 2015–present
- *Assistant professor*, Department of Engineering, Università degli Studi di Perugia, Italy  
Nov. 2000–Jun. 2015
- *CAD Engineer* (internship), Umbra Cuscinetti SpA, Foligno (Italy) Oct.–Nov. 1998
- *Secondary school teacher* (Textile Technologies), Istituto Professionale Statale per l'Industria e L'Artigianato, Perugia (Italy) Dec. 1997–Jun. 1998
- *Secondary school teacher* (Civil and Industrial Plants), Istituto Tecnico Statale per Geometri, Perugia (Italy) Dec. 1997–Jun. 1998
- *Secondary school teacher* (Applied Mechanics), Istituto Tecnico Industriale Statale, Foligno (Italy) Jun.–Jul. 1997

## Visiting positions

- *Academic visitor*, School of Mathematics, Computer Science and Engineering; City, University of London, United Kingdom Sep.–Dec. 2018
- *Academic visitor*, School of Electronic Engineering and Computer Science; Queen Mary, University of London, United Kingdom Sep.–Dec. 2015
- *Visiting research fellow*, School of Computing Sciences; University of East Anglia, United Kingdom Oct.–Dec. 2010
- *Visiting researcher*, School of Industrial Engineering, Department of Engineering Design; Universidade de Vigo, Spain Jun.–Jul. 2009  
Sep. 2007  
Sep. 2006  
Sep. 2005

# Teaching

## Undergraduate courses

- *Graphical Communication for Engineering Design* (5 CFU<sup>2</sup>) + *CAD* (2 CFU), Università degli Studi di Perugia, Department of Engineering, BSc Engineering Management 2024–present
- *Machine Drawing* (10 CFU), Università degli Studi di Perugia, Department of Engineering, BSc Mechanical Engineering 2021–present
- *Technical Drawing* (5 CFU) + *CAD* (2 CFU), Università degli Studi di Perugia, Department of Engineering, BSc Industrial Engineering 2010–present
- *Computer skills* (2 CFU), Università degli Studi di Perugia, Department of Engineering, BSc Mechanical Engineering 2012–2022
- *Technical Drawing* (6 CFU) + *Computer skills* (2 CFU), Università degli Studi di Perugia, Department of Engineering, BSc Mechanical Engineering (curriculum Engineering Management) 2017–2021
- *Machine Drawing* (10 CFU) + *Computer skills* (2 CFU), Università degli Studi di Perugia, Department of Engineering, BSc Mechanical Engineering 2008–2012
- *Machine Drawing* (6 CFU) Università degli Studi di Perugia, Department of Engineering, BSc Mechanical Engineering 2000–2007
- *Technical Drawing* (4 CFU) + *Computer skills* (2 CFU) Università degli Studi di Perugia, Department of Engineering, BSc Energy Engineering and BSc Engineering Management 2005–2010
- *Technical Drawing* (5 CFU) Università degli Studi di Perugia, Department of Engineering, BSc Materials Engineering 2000–2004
- *CAD Laboratory* (2 CFU) Università degli Studi di Perugia, Department of Engineering, BSc Materials Engineering 2003–2005

## Post-graduate courses

- *Product Design and Development* (6 CFU), Università degli Studi di Perugia, Department of Engineering, MEng Industrial Engineering 2009–2010
- *Design Methods of Industrial Engineering* (6 CFU), Università degli Studi di Perugia, Department of Engineering, MEng Mechanical Engineering 2008–2009

## Post-master courses and continuous education

- *Computer-aided Design* (2,75 CFU), Università degli Studi di Perugia, Graduate Teacher Training Programme 2005
- *Computer-aided Design* (4 CFU), Università degli Studi di Perugia, Faculty of Engineering post-master course in Materials Engineering 2004

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<sup>2</sup>Stands for *Credito Formativo Universitario*. This is the unit used in the Italian higher education system to measure and assess the student's work and effort. The minimum number of required credits is 180 for a Bachelor's and 120 for a Master's degree.

- *Technical Drawing I* (1,75 CFU), Università degli Studi di Perugia, Graduate Teacher Training Programme 2002
- *Technical Drawing II* (2 CFU), Università degli Studi di Perugia, Graduate Teacher Training Programme 2003

## **Short courses**

- *Fundamentals of Engineering Drawing: Theory and Applications* (10h), FAIST Componenti S.p.A, Montone, Italy, Feb. 2011
- *Fundamentals of Pattern Recognition and Image Processing* (10h), Universidade de Vigo, Spain, Doctoral Programme in Environmental Engineering Jun. 2009
- *Introduction to Technical Drawing* (15h), Black & Decker Italia, Corciano, Italy Dec. 2008–Jan. 2009
- *Introduction to CAD/CAE* (10h), Master in Virtual Engineering, ITT s.c.a.r.l, Umbertide, Italy 2005
- *Introduction to Object-oriented Programming in C/C++*, Università degli Studi di Perugia, Italy, Doctoral Programme in Industrial Engineering Apr.–May 2004

## **Teaching in Erasmus interchange programmes**

- *Expresión Gráfica* (Technical Drawing, 6h). BSc Energy Engineering and Mining, and BSc Energy Resources and Engineering, Universidade de Vigo, Spain Dec. 2013
- *Expresión Gráfica* (Technical Drawing, 6h). BSc Engineering of Industrial Technologies, BSc Management Engineering, BSc Electrical Engineering, BSc Mechanical Engineering, BSc Industrial Automation and Electronic Engineering, and BSc Industrial Chemical Engineering, Universidade de Vigo, Spain Jan. 2012
- *Expresión Gráfica* (Technical Drawing, 8h). BSc in Industrial Engineering, Universidade de Vigo, Spain Apr. 2019

## **Talks**

- *Intelligenza artificiale e radiomica nella diagnostica per immagini: introduzione a strumenti e metodi [Artificial intelligence and radiomics for diagnostic imaging: an introduction to tools and methods]*. Corso *Tecniche di intelligenza artificiale nell'imaging: istruzioni per l'uso [Short course Artificial intelligence techniques for diagnostic imaging—how to]*. Perugia Hospital, Perugia, Italy 7 November 2025
- *IA e radiomica: uno sguardo d'insieme su strumenti e metodi [AI and radiomics: an overview of tools and methods]*. Corso *AI e radiomica in medicina nucleare: luci ed ombre [Short course on AI and radiomics in Nuclear Medicine: Lights and shades]*. The Italian Society of Nuclear Medicine, Molecular Imaging and therapy (AIMN), Rome, Italy 17 December 2024
- *Quale software scegliere [Which software to choose]*. Educational session *Radiomica come e perché [Radiomics how and why]*, the 16<sup>th</sup> National Congress of the Italian Society of Nuclear Medicine and Molecular Imaging (AIMN), Milan, Italy 23 June 2024

- *Intelligenza artificiale applicata all'imaging medico nucleare: estrazione e analisi di features radiomiche* [Artificial intelligence applied to Nuclear Medicine imaging: extraction and analysis of radiomics features] (with B. Palumbo), webinar “Evoluzione tecnologica, digital health and Nuclear Medicine” [Technical evolution, digital health and Nuclear Medicine], Italian Society of Nuclear Medicine and Molecular Imaging (AIMN), The Health Technology Assessment (HTA) study group 26 Jan. 2024
- *A quick introduction to Radiomics*. Webinar Introduction to Radiomics for Nuclear Medicine, Italian Society of Nuclear Medicine and Molecular Imaging (AIMN), The AI-Radiomics study group 16 Jan. 2023;
- *Colour and texture descriptors for visual recognition: From the early years to convolutional networks*. Keynote lecture (online), 2<sup>nd</sup> International Conference on Computer Engineering and Science (CCES 2022), Islamic Azad University, Najafabad, Iran 20 Dec. 2022;
- *Intelligenza artificiale e radiomica: applicazioni in Medicina Nucleare* [Artificial Intelligence and Radiomics: Applications in Nuclear Medicine] (with B. Palumbo), Memorial Dr. Fausto Chionne “Dall'intelligenza artificiale alla medicina predittiva e di precisione: quali sviluppi in sanità” [From artificial intelligence to personalised and predictive medicine: Developments for the healthcare system; in memory of Dr. Fausto Chionne], Città della Pieve, Italy 13 Oct. 2022
- *Intelligenza artificiale e radiomica: uno sguardo d'insieme* [Artificial intelligence and radiomics: an overview]. Invited note at the round-table on Artificial Intelligence and Radiomics, the 15<sup>th</sup> National Congress of the Italian Society of Nuclear Medicine and Molecular Imaging (AIMN), Rimini, Italy 14 May 2022
- *Advances in modelling and analysis of the human body by computational imaging* (with G. Pascoletti). Keynote lecture (online), 2<sup>nd</sup> International Congress on Engineering Sciences and Multi-disciplinary Approaches, Istanbul, Turkey 18 Sep. 2021
- *Radiomics in medical imaging: an overview*. Invited talk, IET Webinar Recent advances in Medical Image Analysis 25 Jun. 2021
- *Texture and colour descriptors for visual recognition: historical overview and applications to computer vision and robotics*. Keynote lecture (online), The 2020 International Conference on Control, Automation and Diagnosis (ICCAD'20), Paris, France 7 Oct. 2020
- *Role of artificial intelligence techniques (automatic classifiers) in molecular imaging modalities in neurodegenerative diseases* (with B. Palumbo). Invited talk, short course in Big Data, Radiomics & Artificial Intelligence; Italian Association for Medical Physics (AIFM), Reggio Emilia, Italy 15-16 Dec. 2017
- *Towards a procedural model for CAD data exchange*; 5<sup>th</sup> workshop on Design Tools and Methods in Industrial Engineering, Pisa, Italy, 21-23 Mar. 2005
- *Collaborative CAD modeling and construction of augmented CAD models*; 4<sup>th</sup> workshop on Design Tools and Methods in Industrial Engineering, Erice, Italy 29 Sep.-1 Oct. 2003
- *Approaches for integration of CAD/CAM/CAE systems*; 3<sup>rd</sup> Workshop on Design Tools and Methods in Industrial Engineering, Firenze, Italy 27-28 Jun. 2002

- *Interface-based methods for data exchange among CAx systems*; 2<sup>nd</sup> Workshop on Design Tools and Methods in Industrial Engineering, Perugia, Italy 5-6 Jul. 2001
- *Collaborative design and data exchange through STL files*; 1<sup>st</sup> Workshop on Design Tools and Methods in Industrial Engineering, Parma, Italy Sep. 2000

## Seminars

- *Texture and colour descriptors for visual recognition: an overview of methods applications*. Doctoral programme in Industrial and Information Engineering, Università degli Studi di Perugia, Italy 23 Jun. 2021
- *Hand-designed descriptors vs. pre-trained convolutional networks: a comparison of two strategies for colour texture classification*. School of Mathematics, Computer Science and Engineering; City, University of London, United Kingdom 20 Nov. 2018
- *Texture description through histograms of equivalent patterns: A unifying Framework for LBP and related methods*. School of Computing Sciences, University of East Anglia, United Kingdom 9 Dec. 2015
- *Texture description through histograms of equivalent patterns: A unifying Framework for LBP and related methods*. School of Electronic Engineering and Computer Science; Queen Mary, University of London, United Kingdom 22 Sep. 2015
- *Introduction to computer vision*, School of Industrial Engineering, Universidade de Vigo, Spain 21 Jan. 2014
- *Fundamentals of pattern recognition and colour image analysis*, School of Industrial Engineering, Universidade de Vigo, Spain 27 Nov. 2012
- *Introduction to pattern recognition and computer vision with applications in the industry*, School of Industrial Engineering, Universidade de Vigo, Spain 24 Jan. 2012
- *Colour vision and pattern recognition*. School of Industrial Engineering, Universidad de Vigo, Spain 11 Jan. 2011
- *Automatic characterization of materials appearance through texture and colour analysis*. School of Computing Sciences, University of East Anglia, United Kingdom 15 Oct. 2010
- *Data exchange among CAD/CAM/CAE systems: problems and perspectives*. Università degli Studi dell'Aquila, Italy 16 Dec. 2004

## Tutorials

- *Colour texture analysis and classification* (with C. Cusano and P. Napoletano), 5<sup>th</sup> Computational Colour Imaging Workshop (CCIW'17), Milan, Italy 29 Mar. 2017

## Supervision of PhD dissertations

- R. Bello-Cerezo *Colour texture classification at the end of the 'early' years: hand-designed descriptors or pre-trained convolutional neural networks?* Doctoral Programme in Industrial and Information Engineering, Università degli Studi di Perugia, Italy Apr. 2019

## **Supervision of BSc and MSc theses**

- Thirty BSc and MSc theses within the Department of Engineering, Università degli Studi di Perugia, Italy  
2001–present
- Eight MSc theses within the School of Industrial Engineering, Universidade de Vigo, Spain  
2007–2014

## **Administrative work**

- Member of the research committee, Department of Engineering, Università degli Studi di Perugia, Nov. 2014–Nov. 2025
- Member of the internship committee, BSc and MSc in Mechanical Engineering, Università degli Studi di Perugia  
Nov. 2022–present
- Member of the quality assurance group, BSc and MSc in Mechanical Engineering, Università degli Studi di Perugia  
Jan. 2024–present
- Member of the steering committee of the Doctoral Programme in Industrial and Information Engineering, Università degli Studi di Perugia  
2013–present
- Member of the steering committee of the Doctoral Programme in Industrial Engineering, Università degli Studi di Perugia  
2003—2012

## **Research projects**

### **As principal investigator**

- *Analisi della geometria e della tessitura di modelli piani e volumetrici: metodi ed applicazioni (STARTLE – Shape and Texture Analysis of planar and volumeTric models: mEthods and applications)*. Fundamental research grants, Department of Engineering, Università degli Studi di Perugia, Italy. Amount granted: € 4000,00.  
2022-2024
- *Caratteristiche di forma, colore e tessitura per l'analisi di immagini piane e volumetriche: metodi ed applicazioni (Shape, colour and texture features for the analysis of two- and three-dimensional images: methods and applications)*. Fundamental research grants, Department of Engineering, Università degli Studi di Perugia, Italy. Amount granted: € 2.751,32.  
2020-2021

### **As investigator/participant**

- *Innovation, digitalisation and sustainability for the diffused economy in Central Italy (VITALITY). Spoke 9: NANOMAT pole – Nanostructured materials and devices*. NextGenerationEU (National Recovery and Resilience Plan – NRRP) grant, Italian Ministry for University and Research (MUR) and the European Commission. Overall budget: € 18.482.071,99  
2024-2025
- *3D printing and digital twinning ceramic restorations for dentistry (3DCer4Dent)*. National research grants (PRIN 2022), Italian Ministry for University and Research (MUR), Italy. Amount granted: € 306.790,00 (total), 86.589,00 (Università degli Studi di Perugia)  
2023-2025

- *Artificial intelligence for Earth observation.* Fundamental research grants, Department of Engineering, Università degli Studi di Perugia, Italy. Amount granted: € 3000,00. 2021-2022
- *Algoritmi classici e di Machine Learning per lo sviluppo di modelli sperimentali “data driven” per applicazioni robotiche e per la classificazione di prodotti industriali (Traditional and Machine Learning algorithms for developing data-driven robotics applications and for automatic classification of industrial products).* Fundamental research grants, Department of Engineering, Università degli Studi di Perugia, Italy. Amount granted: € 5600,00. 2019-2020
- *Identificación basada en objetos de cultivos hortícolas bajo invernadero a partir de stereo imágenes del satélite WorldView-3 y series temporales de Landsat-8 – Ref. AGL2014-56017-R (Object-based identification of greenhouse horticultural crops through satellite stereo imagery from WorldView-3 and time series from Landsat-8).* Ministry of Economy and Competitiveness, Spain; Universidad de Almería, Spain. Amount granted: € 85.000,00. 2015-2018
- *BioMeTron: Un nuovo approccio integrato e multidisciplinare per lo studio, la gestione e la progettazioni di impianti biologici per l'energia e l'ambiente (A new multi-disciplinary, integrated approach for studying, designing and managing biological plants for energy and the environment).* Fundamental research grants, Department of Engineering, Università degli Studi di Perugia, Italy. Amount granted: € 14.000,00. 2015-2017
- *LIFE12 ENV/IT/000411 Enhanced material recovery and environmental sustainability for small scale waste management systems.* European Commission. 2013-2018
- *GEOEYE1-WV2: Generación de datos georeferenciados de muy alta resolución a partir de imágenes de los satélites GeoEye-1 Y WorldView-2 – ref. CTM2010-16573 (Generation of high resolution geo-referenced data from GeoEye-1 and WorldView-2 satellite images).* Ministry of Science and Education, Spain; Universidad de Almería, Spain. 2011-2013
- *EFESO: Environmental Friendly Energy from Solid Oxide Fuel Cells.* Ministry of Economic Development, Italy. Total amount granted: € 10.922.360,00 2009-2011
- *Modeling, simulation and experimental evaluation of materials for Industrial and Civil Engineering.* Consortium for the development of the University District, Terni, Italy. Amount granted: € 73.000,00 2007-2008
- *Sistemi innovativi per la gestione e la condivisione delle informazioni di prodotto in ambienti CAx (Innovative systems for sharing and managing product data in CAx environments).* Ministry of Education, University and Research; PRIN programme 2005, Italy. Amount granted: € 73.000,00 2007-2008

## **Other grants and fellowships for teaching, research and consultancy**

- *FFABR: Finanziamento delle Attività Base di Ricerca (Funding for Basic Activities Related to Research).* National Agency for the Evaluation of Universities and Research Institutes, Italy. Amount: € 3000,00. 2017
- *Introduction to Engineering Drawing: Theory and applications.* Faist Componenti S.p.A., Montone (PG), Italy. Grant type: teaching and consultancy. Amount: € 3000,00. 2018

- *Introduction to Engineering Drawing: Theory and applications*. Faist Componenti S.p.A., Montone (PG), Italy. Grant type: teaching and consultancy. Amount: € 1500,00. 2017
- *Introduction to Engineering Drawing: Theory and applications*. Faist Componenti S.p.A., Montone (PG), Italy. Grant type: teaching and consultancy. Amount: € 1000,00. 2016
- *Introduction to Computer Vision*. Universidade de Vigo, Spain. Grant type: teaching. Amount: € 500,00. 2014
- *Fundamentals of pattern recognition and colour image analysis*. Universidade de Vigo, Spain. Grant type: teaching. Amount: € 500,00. 2013
- *Fundamentals of pattern recognition and colour image analysis*. Universidade de Vigo, Spain. Grant type: teaching. Amount: € 1200,00. 2012
- *Colour vision and pattern recognition*. Universidade de Vigo, Spain. Grant type: teaching. Amount: € 1200,00. 2011
- *Digital image processing and pattern recognition*. Universidade de Vigo, Spain. Grant type: teaching. Amount: € 1800,00. 2009
- *Introduction to Engineering drawing, materials and manufacturing processes*. Black & Decker Italia S.p.A., Corciano (PG), Italy. Grant type: teaching and consultancy. Amount: € 6000,00. 2008-2009
- *Characterization of the visual appearance of ornamental stone through combination of classifiers*. Universidade de Vigo, Spain. Grant type: visiting fellowship. Amount: € 1200,00. 2006
- *Characterization of the visual appearance of natural stones (marble and granite) through image processing and artificial intelligence*. National Research Council, Italy. Grant type: Short-term mobility fellowship. Amount: € 1.787,87. 2005
- *Design and optimisation of shelters*. O.M.C. Srl, Passignano (PG), Italy. Grant type: consultancy. Amount: € 5.760,00. 2005

## Editorial work

- Guest Editor of the Special Issue 'Radiomics in cancer imaging: Theory and applications in solid tumours', *Cancers* (e-ISSN 2072-6694) closing Oct. 2025
- Academic Editor for *PLOS One* (e-ISSN: 1932-6203) Jun. 2020–Mar. 2024
- Academic Editor for *Applied Sciences* (e-ISSN: 2076-3417) Nov. 2019–Feb. 2022
- Guest Editor of the Special Issue 'Artificial intelligence in Image-Based Diagnostics of Oncological and Neurological Disorders 2.0', *Diagnostics* (e-ISSN 2075-4418) closed Dec. 2023
- Managing Guest Editor of the Virtual Special Issue 'Visual dEscriptors for TexturE Recognition: from Gabor to deep leArNing (VETERAN)', *Pattern Recognition Letters* (ISSN: 0167-8655) closed Sep. 2022

- Guest Editor of the Special Issue 'Automated Product Inspection for Smart Manufacturing', *Applied Sciences* (e-ISSN: 2076-3417) closed Aug. 2022
- Guest Editor of the Special Issue 'Artificial intelligence in Image-Based Diagnostics of Oncological and Neurological Disorders', *Diagnostics* (e-ISSN 2075-4418) closed Dec. 2021
- Guest Editor of the Special Issue 'Texture and Colour in Image Analysis', *Applied Sciences* (e-ISSN: 2076-3417) closed Apr. 2020
- Reviewer for:  
*Applications in Engineering Science* (3 manuscripts revised); *Applied Mathematics and Computation* (2); *Algorithms* (4), *Applied Sciences* (13), *Archaeometry* (1), *Automation in Construction* (3); *Autosoft Journal* (2), *Bioengineering* (2), *Biomedicines* (1), *Biopolymers & Biomedicine* (1), *Biosystems Engineering* (2), *BMC Cancer* (1), *BMC Medical Imaging* (7), *Cancer Imaging* (3), *Cancer Investigation* (1), *Cancer Medicine* (2), *Cancer Management and Research* (1), *Cancers* (3), *Clinical and Translational Imaging* (3), *Clinical Lung Cancer* (1), *Computers and Electronics in Agriculture* (1), *Computers in Industry* (2), *Computer Methods and Programs in Biomedicine* (3), *Concurrency and Computation: Practice and Experience* (1), *Data in Brief* (1), *Diagnostics* (3), *Digital Signal Processing* (4), *Dyna-Colombia* (1), *Ecological Informatics* (1), *Electronics* (3), *Energy and Buildings* (1), *Entropy* (2), *Engineering Computations* (1), *Expert Review of Medical Devices* (2), *Expert Systems With Applications* (11), *EURASIP Journal on Image and Video Processing* (1), *European Journal of Nuclear Medicine and Molecular Imaging* (1), *European Radiology* (2), *Fibers and Polymers* (1), *Food Science and Applied Biotechnology* (1), *Frontiers in Medicine* (1), *Frontiers in Oncology* (2), *Future Generation Computer Systems* (1), *IEEE Access* (1), *IEEE Journal of Biomedical and Health Informatics* (1), *IEEE Signal Processing Letters* (2), *IEEE Transactions on Circuits and Systems for Video Technology* (1), *IEEE Transactions on Emerging Topics in Computational Intelligence* (1), *IEEE Transactions on Image Processing* (19), *IEEE Transactions on Medical Imaging* (1), *IEEE Transactions on Multimedia* (2), *IEEE Transactions on Signal Processing* (1), *IET Image Processing* (2), *IET Signal Processing* (2), *IET Computer Vision* (2), *Information* (1), *Información Tecnológica* (1), *Integrated Computer-aided Engineering* (1), *Intelligent Automation and Soft Computing* (1), *International Journal of Computer Applications in Technology* (1), *International Journal of Computer Vision* (1); *International Journal of Continuing Engineering Education and Life-Long Learning* (1), *International Journal of Cosmetic Science* (1), *International Journal on Interactive Design and Manufacturing* (2) *International Journal of Multimedia Information Retrieval* (1), *International Journal of Neural Systems* (2), *Journal of Applied Remote Sensing* (1), *Journal of Cancer Research and Clinical Oncology* (1), *Journal of Computational Methods in Sciences and Engineering* (1), *Journal of Computer Assisted Radiology and Surgery* (1), *Journal of Digital Imaging* (1), *Journal of Electronic Imaging* (9), *Journal of King Saud University* (1), *Journal of Imaging* (8), *Journal of Imaging Science and Technology* (1), *Journal of Medical Imaging* (1), *Journal of Medical Imaging and Health Informatics* (9), *Journal of the Optical Society of America – A* (1), *Journal of Visualization* (3), *Journal on Computing and Cultural Heritage* (1), *Knowledge-Based Systems* (3), *Life* (1), *Machine Vision and Applications* (1), *Measurement* (2), *Medical Image Analysis* (2), *Microscopy Research & Technique* (1), *Modelling and Simulation in Engineering* (2); *Molecular Imaging and Biology* (2), *Multidimensional Systems and Signal Processing* (7), *Nanomaterials* (1), *Neurocomputing* (1), *Optical Engineering* (4), *Optics and Lasers in Engineering* (7), *Optik - International Journal for Light and Electron Optics* (1), *Opto-Electronics Review* (1), *Pattern Analysis and Applications* (1), *Pattern Recognition* (11), *Pattern Recognition Letters* (9), *PeerJ Computer Science* (2), *Photogrammetric Engineering and Remote Sensing* (2), *PlosONE* (6), *Quantitative Imaging in*

*Medicine and Surgery* (3), *Radiation Oncology* (1), *Remote Sensing* (3), *Respiratory Research* (1), *Scientific Reports* (4), *Signal Processing* (1), *SN Applied Sciences* (2), *Surfaces & Coatings Technology* (1), *Sensors* (9), *Solar Energy Materials & Solar Cells* (1), *Superficies y Vacío* (1), *Symmetry* (4), *Technologies* (1), *Textile Research Journal* (1), *Theranostics* (1), *Translational lung cancer research* (3), *Turkish Journal of Agriculture and Forestry* (1).

- MDPI Cancers – Exceptional Reviewer (Q4, 2024)

## Participation in the organisation of scientific events

### Organising committees

- The 6<sup>th</sup> International Conference on Control, Automation and Diagnosis (ICCAD'22); Lisbon, Portugal. Role: co-publication chair Jul. 2022
- The 5<sup>th</sup> International Conference on Control, Automation and Diagnosis (ICCAD'20); Paris, France. Role: co-publication chair Oct. 2020
- *Texture Analysis, Classification and Retrieval (TAILOR)*. Workshop within the 25<sup>th</sup> International Conference on Pattern Recognition (ICPR); Milan, Italy. Role: workshop organiser Jan. 2021
- *Processing visual data in intelligent systems: methods and applications*. Special track within the 10<sup>th</sup> KES International Conference on Intelligent Interactive Multimedia: Systems and Services; Vilamoura, Portugal. Role: session organizer and chair Jun. 2017

### Scientific and programme committees

- Heritechne Conference 2026
- EG-ICE International Workshop on Intelligent Computing in Engineering 2025
- International Conference on Image Processing and Vision Engineering (IMPROVE 2024, IMPROVE 2025)
- International Conference on Frontiers of Digital Signal Processing (CFDSP 2023)
- International Symposium on Mathematical and Computational Oncology, Virtual (ISMCO'21)
- International Conference on Computer Graphics and Digital Image Processing (CGDIP 2020, CGDIP 2021)
- International Conference on Frontiers of Digital Signal Processing (CFDSP 2021)
- The International Conference on Control, Automation and Diagnosis (ICCAD'20, ICCAD'21 – co-publication chair, ICCAD'23, ICCAD'24 and ICCAD'25 – co-special session chair)
- First International Symposium on Information and Future Technologies (ISIFut 2020)
- 15<sup>th</sup> European Congress on Digital Pathology (ECDP 2019)
- 4<sup>th</sup> International Workshop on Interactive and Spatial Computing (IWISC 2019)
- KES International Conference on Intelligent Decision Technologies (IDT 2019)

- International Conference on Advances in Signal Processing and Artificial Intelligence (ASPAI 2019)
- International Conference on Big Data and Machine Learning (BDML 2018)
- International Conference Florence Heri-Tech (The future of Heritage Science and technologies, 2018, 2020 and 2022)
- International Conference on Advances in Image Processing (ICAIP 2018–2019)
- Computational Color Imaging Workshop (CCIW'17)
- KES International Conference on Intelligent Interactive Multimedia: Systems and Services (IIMSS-17, IIMSS-18)
- International Conference on Communication and Information Processing (ICCIP 2016–2020)
- 1st IEEE Italy Section Summer School – Advanced course for graduated students and industrial research (IEEEESS 2015)
- Knowledge-Based and Intelligent Information & Engineering Systems (KES 2015–2017)
- Workshop Colour in Texture and Material Recognition (in conjunction with the 18th Int. Conf. on Image Analysis and Processing – ICIAP 2015)
- Portuguese Conference on Artificial Intelligence (EPIA 2015)
- International Conference on Systems (ICONS 2015–2024)
- International Conference on Modelling, Simulation, and Identification (MSI 2014, MSI 2016)
- World Conference on Information Systems and Technologies (WorldCIST'13–21)
- International Conference on Computer Graphics and Imaging (CGIM 2013)
- Irish Machine Vision and Image Processing Conference (IMVIP 2011, IMVIP 2014–2023)
- Imaging and Signal Processing in Healthcare and Technology (ISPHT 2011)
- Computational Photography (CPhoto 2011)
- Visualization Imaging and Image Processing (VIIP 2007–2009 and VIIP 2012)
- International Conference on Information Visualization (IV07–10, IV2011, IV2012, IV2013, IV2015 and IV2016)
- Applied Simulation and Modelling (ASM 2008, ASM 2009 and ASM 2012)
- International Joint Congress XVI ADM – XIX INGEGRAF (2007)

## Other

- Webinar on *Intelligenza artificiale e PET nella diagnosi e gestione clinica delle vasculiti: nuove frontiere per la medicina* [Artificial Intelligence and PET for the diagnosis and clinical management of vasculitis: new frontiers for medicine], the Italian Society of Nuclear Medicine and Molecular Imaging, 12 Nov. 2025 Role: moderator
  - ADM 2025 International Conference Role: reviewer
  - ADM 2024 International Conference Role: reviewer and session chair
  - The 27<sup>th</sup> International Conference on Pattern Recognition (ICPR 2024) Role: reviewer
  - ADM 2023 International Conference Role: reviewer and session chair
  - International Joint Conference on Mechanics, Design Engineering and Advanced Manufacturing (JCM 2022) Role: reviewer and session chair

## **Advisory and evaluation**

- Member of the final evaluation committee for the degree of Doctor of Philosophy, Doctoral programme in Artificial Intelligence, Politecnico di Torino, Italy Jun. 2025
  - Reviewer for Proyectos Sinérgicos I+D 2024, Comunidad de Madrid, Spain May 2025
  - External reviewer for PhD dissertation, Doctoral Programme in Aerospace Science and Technology, Università degli Studi di Bologna, Italy Jan. 2024
  - External reviewer for PhD dissertation, Doctoral Programme in Industrial Engineering, Università degli Studi di Firenze, Florence, Italy Dec. 2024
  - External reviewer for PhD dissertation, Doctoral programme in Environment Design Innovation, University of Campania ‘Luigi Vanvitelli’, Italy, Sep. 2024 Sep. 2024
  - External reviewer for PhD dissertation, EIDO International Doctoral School, Universidade de Vigo, Spain May 2024
  - Member of the final evaluation committee for the degree of Doctor of Philosophy, Department of Industrial Engineering, Università degli Sudi di Firenze, Italy Apr. 2024
  - Member of the final evaluation committee for the degree of Doctor of Philosophy, department of Industrial and Information Engineering, Università di Pavia, Italy Mar. 2024
  - External reviewer for PhD dissertation, EIDO International Doctoral School, Universidade de Vigo, Spain Mar. 2024
  - External reviewer for PhD dissertation, Doctoral Programme in Industrial Engineering, Università degli Studi di Firenze, Florence, Italy Dec. 2023
  - External reviewer for PhD dissertation, International Doctoral School, Universidade de Vigo, Spain November 2023
  - External reviewer for PhD dissertation, Department of Informatics, Systems and Communications, Università degli Studi di Milano-Bicocca Milan, Italy Nov. 2023

- Member of the final evaluation committee for the degree of Doctor of Philosophy, International Doctoral School, Universidade de Vigo, Spain Feb. 2023
- External reviewer for PhD dissertation, International Doctoral School, Universidade de Vigo, Spain April 2022
- Member of the final evaluation committee for the degree of Philosophiae Doctor, Faculty of Information Technology and Electrical Engineering, Norges Teknisk-Naturvitenskapelige Universitet (NTNU), Gjøvik, Norway Jan. 2022
- External reviewer for PhD dissertation, Department of Informatics, Systems and Communications, Università degli Studi di Milano-Bicocca Milan, Italy, Nov. 2021
- External reviewer for the Italian Ministry for University and Research, National Research Projects (PRIN) call 2020 May-Sep. 2021
- External reviewer for PhD dissertation, School of Electronic Engineering and Computer Science, Queen Mary University of London, United Kingdom May 2020
- External reviewer for PhD dissertation, Anna University, Chennai, India Feb. 2020
- External referee for academic promotions at London South Bank University, United Kingdom Feb. 2020
- External reviewer for PhD dissertation, University of Florence, Italy Dec. 2019
- Head of the evaluation panel for Fondimpresa Lifelong Learning projects ('Technology and/or digital innovation' call 4/2018), Rome, Italy Mar.-Sep. 2019
- External reviewer for the Young Researchers Programme 'Rita Levi Montalcini', Italian Ministry of Education 2016
- Member of the final evaluation committee for the degree of Doctor of Philosophy, International Doctoral Programme, University of Vigo, Spain Jul. 2019
- Member of the final evaluation committee for the degree of Doctor of Philosophy, Department of Engineering, University of Almería, Spain Jul. 2013
- Member of the final evaluation committee for the degree of Doctor of Philosophy, Department of Mining and Environmental Engineering, University of Vigo, Spain Jul. 2011
- Member of the final evaluation committee for the degree of Doctor of Philosophy, Faculty of Sciences, University of Vigo, Spain Mar. 2010

## Honours and awards

- Best paper award: G. Pascoletti, C. Di Natali, M. Sposito, G. Franceschini, F. Bianconi and E.M. Zanetti; A multibody model of the exoskeleton-human body system for ergonomic design, ADM2024 International Conference, Palermo, Italy Sep. 2024

- First Prize: S. Cascianelli, C. Tranfaglia, M.L. Fravolini, F. Bianconi, M. Minestrini, S. Nuvoli, N. Tambasco, M.E. Dottorini and B. Palumbo; *Right putamen and age are the most discriminant features to diagnose Parkinson's disease by using 123I-FP-CIT brain SPECT data by using an artificial neural network classifier, a classification tree (CIT)*, 4<sup>th</sup> International Medical Olympiad; Thessaloniki, Greece Nov. 2017
- Best paper award: R. Bello-Cerezo, F. Bianconi, S. Cascianelli, F. Di Maria, M. Fravolini and F. Smeraldi; *Hand-designed local image descriptors vs. off -the-shelf CNN-based features for texture classification: an experimental comparison*, 9<sup>th</sup> International Conference on Intelligent Interactive Multimedia: Systems and Services; Vilamoura, Portugal Jun. 2017
- Best paper award: M.J. Álvarez, A. Fernández, E. González, F. Bianconi, F.J. Aguilar and J. Armesto; *Image segmentation using multilayer Coordinated Cluster Representation*, International Joint Congress XXI INGEGRAF - XVII ADM; Lugo, Spain Jun. 2009

## Patents and inventions

- IT patent no. 1413266: *Apparatus to acquire a plurality of superficial images of at least one body and related method.* Assignee: Mondial Marmi S.r.l.; inventors: F. Bianconi, S.A. Saetta, A. Fernández and E. González 2015.

## Publications

### Selected (sorted by date, newest first)

F. Bianconi, I. Palumbo, M.L. Fravolini, R. Chiari, M. Minestrini, L. Brunese, and B. Palumbo. Texture analysis on [18F]FDG PET/CT in non-small-cell lung cancer: Correlations between PET features, CT features, and histological types. *Molecular Imaging and Biology*, 21(6):1200–1209, December 2019

F. Bianconi, C. Cusano, P. Napoletano, and R. Schettini. CNN-based refactoring of hand-designed filters for texture analysis: A classic revisited. *IEEE Access*, 7:173076–173085, November 2019. Art. no. 8918055

F. Bianconi and E. González. Counting local  $n$ -ary patterns. *Pattern Recognition Letters*, 117:24–29, January 2019

J.N. Kather, C.-A. Weis, F. Bianconi, S.M. Melchers, L.R. Schad, T. Gaiser, A. Marx, and F.G. Zöllner. Multi-class texture analysis in colorectal cancer histology. *Scientific Reports*, 6, June 2016. art. no. 27988

F. Bianconi and A. Fernández. On the occurrence probability of local binary patterns: A theoretical study. *Journal of Mathematical Imaging and Vision*, 40(3):259–268, July 2011

F. Bianconi, R. Harvey, P. Southam, and Fernández. Theoretical and experimental comparison of different approaches for color texture classification. *Journal of Electronic Imaging*, 20(4), October 2011. Article number 043006

## Books

- [1] F. Bianconi. *Data and process visualisation for graphic communication: A hands-on approach with Python*. Springer Nature, Cham, first edition, May 2024. XIX, 242 p., 14 b/w illustrations, 84 illustrations in colour

## Edited books

- [1] F. Bianconi, A. Fernández, and R.E. Sánchez-Yáñez, editors. *Texture and color in image analysis*. MDPI, 2021. Printed edition of the Special Issue Texture and Colour in Image Analysis, published in Applied Sciences

## Book chapters

- [1] F. Bianconi and A. Fernández. A unifying framework for LBP and related methods. In S. Brahnam, L. C. Jain, L. Nanni, and A. Lumini, editors, *Local binary patterns: New variants and applications*, volume 506 of *Studies in Computational Intelligence*, pages 17–46. Springer, 2014
- [2] J.N. Kather, R. Bello-Cerezo, F. Di Maria, G.W. van Pelt, W.E. Mesker, N. Halama, and F. Bianconi. Classification of tissue regions in histopathological images: Comparison between pre-trained convolutional neural networks and local binary patterns variants. In L. Nanni, S. Brahnam, R. Brattin, S. Ghidoni, and L.C. Jain, editors, *Deep learners and deep learner descriptors for medical applications*, volume 186 of *Intelligent Systems Reference Library*, chapter 3, pages 95–115. Springer, 2020

## Journal papers

- [1] L. Filippi, F. Bianconi, V. Frantellizzi, C. Ferrari, A. Marongiu, M. S. De Feo, C. Battisti, G. Aghakhanyan, M. Gazzilli, N. Urbano, S. Nuvoli, D. Volterrani, M. L. Fravolini, G. Rubini, G. De Vincentis, A. Spanu, and B. Palumbo. Machine learning for automated differentiation of parkinson's disease and its mimics using  $^{123}\text{I}$ -mIBG scintigraphy: insights from a multicentre real-world cohort (ITA-mIBG study). *European Journal of Nuclear Medicine and Molecular Imaging*, 2026. Published: 02 Jan. 2026
- [2] B. Palumbo, L. Filippi, A. Marongiu, F. Bianconi, M. L. Fravolini, R. Danieli, V. Frantellizzi, G. De Vincentis, A. Spanu, and S. Nuvoli. Diagnostic accuracy of DaTQUANT<sup>®</sup> versus BasGanV2<sup>TM</sup> for  $^{123}\text{I}$ -loflupane brain SPECT: A machine learning-based differentiation of Parkinson's disease and essential tremor. *Biomedicines*, 13(10), 2025. Art. no. 2367
- [3] A. Marongiu, A. Spanu, B. Palumbo, F. Bianconi, L. Filippi, G. Madeddu, and S. Nuvoli. Artificial intelligence in PET imaging for Alzheimer's disease: A narrative review. *Brain Sciences*, 15(10), September 2025. Art no. 1038
- [4] F. Bianconi, M. U. Khan, H. Du, and S. Jassim. Experimental assessment of conventional features, CNN-based features and ensemble schemes for discriminating benign versus malignant lesions on breast ultrasound images. *Ultrasonic Imaging*, 47(6):256–269, November 2025
- [5] G. Pascoletti, C. Di Natali, D. G. Caldwell, M. Sposito, F. Bianconi, and E. M. Zanetti. The exoskeleton-human body system: a multibody model for fitting design analyses. *International Journal on Interactive Design and Manufacturing (IJIDeM)*, 2025. Published: 14 August 2025

- [6] L. Filippi, F. Bianconi, C. Ferrari, F. Linguanti, C. Battisti, N. Urbano, M. Minestrini, S. G. Messina, L. Buci, A. Baldoncini, G. Rubini, O. Schillaci, and B. Palumbo. Digital versus analogue PET in parathyroid imaging: comparison of PET metrics and machine learning-based characterisation of hyperfunctioning lesions (the DIGI-PET study). *European Journal of Nuclear Medicine and Molecular Imaging*, 2025. Published: 22 Aug. 2025
- [7] O. Bagni, R. Danieli, F. Bianconi, B. Palumbo, and L. Filippi. Clinical performance of analog and digital 18F-FDG PET/CT in pediatric epileptogenic zone localization: preliminary results. *Biomedicines*, 13(8), 2025. Art. no. 1887
- [8] L. Filippi, F. Bianconi, M. Minestrini, G. De Vincentis, V. Frantellizzi, A. Marongiu, C. Ferrari, A. Giordano, D. D'Ambrosio, M. Gazzilli, F. Bertagna, O. Bagni, S. Panareo, P. Guglielmo, A. Lazzarato, M. Casali, G. Aghakhanyan, A. Spanu, L. Evangelista, O. Schillaci, and B. Palumbo. Multi-centre data harmonisation applied to heart-to-mediastinum quantification in parkinsonism (ITA-MIBG): a cross-calibration phantom study with tube and bottle. *Clinical and Translational Imaging*, February 2025
- [9] L. Filippi, F. Bianconi, O. Schillaci, and B. Palumbo. This union must happen: Radiomics and LAFOV PET/CT as the power couple of nuclear medicine. *European Journal of Nuclear Medicine and Molecular Imaging*, December 2024. Letter to the Editor
- [10] F. Bianconi, R. Salis, M.L. Fravolini, M.U. Khan, L. Filippi, A. Marongiu, S. Nuvoli, A. Spanu, and B. Palumbo. Radiomics features from Positron Emission Tomography with [18F] Fluorodeoxyglucose can help predict cervical nodal status in patients with head and neck cancer. *Cancers*, 16(22), November 2024. Art. no. 3759
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- [12] F. Bianconi, R. Salis, M. L. Fravolini, M. U. Khan, M. Minestrini, L. Filippi, A. Marongiu, S. Nuvoli, A. Spanu, and B. Palumbo. Performance analysis of six semi-automated tumour delineation methods on [18F] fluorodeoxyglucose positron emission tomography/computed tomography (FDG PET/CT) in patients with head and neck cancer. *Sensors*, 23(18), 2023. Art. no. 7952
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- [18] E. Buchicchio, A. De Angelis, F. Santoni, P. Carbone, F. Bianconi, and F. Smeraldi. LiBEIS: A software tool for broadband electrochemical impedance spectroscopy of lithium-ion batteries. *Software Impacts*, 14, November 2022. Art. no. 100447
- [19] S. Nuvoli, B. Palumbo, A. Marongiu, F. Bianconi, and A. Spanu. <sup>123</sup>I-MIBG cardiac scintigraphy and heart/mediastinum ratio in neurodegenerative disorders: Is delayed scan really necessary? *Current Radiopharmaceuticals*, 15(4):257–258, December 2022
- [20] S. Nuvoli, F. Bianconi, M. Rondini, A. Lazzarato, A. Marongiu, M.L. Fravolini, S. Cascianelli, S. Amici, L. Filippi, A. Spanu, and B. Palumbo. Differential diagnosis of Alzheimer disease vs mild cognitive impairment based on left temporal lateral lobe hypometabolism on <sup>18</sup>F-FDG PET/CT and automated classifiers. *Diagnostics*, 12(10), September 2022. Art. no. 2425
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- [25] F. Bianconi and E. Brugnoli. Enumerating necklaces with transitions. *Bulletin of the Australian Mathematical Society*, 105(11):1–11, 2022
- [26] F. Bianconi, A. Fernández, F. Smeraldi, and G. Pascoletti. Colour and texture descriptors for visual recognition: A historical overview. *Journal of Imaging*, 7(11), November 2021. Art. no. 245
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## Memberships & professional affiliations

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- Member of the Applied Geotechnologies Research Group ('TF1') at the Universidade de Vigo, Spain 2023–present
- Member of the research group *Gestión integrada del territorio y tecnologías de la información espacial* at the Universidad de Almería, Spain 2015–present
- Senior Member of the Institute of Electrical and Electronics Engineers (IEEE) 2013–present
- Member of the Institute of Electrical and Electronics Engineers (IEEE) 2000–2013
- Court-appointed Expert, Perugia Court of Justice, Perugia, Italy 1998–present
- Chartered Engineer, Perugia Engineering Council, Perugia, Italy 1997–present