PERSONAL INFORMATION

Arcangelo Merla

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WORK EXPERIENCE

2023 Technology Transfer Deputy of University G. d'Annunzio of Chieti-Pescara

2023 Full Professor of Electronic and Informatics Biomedical Engineering
SC: 09/G2; SSD: ING INF/06 - Department of Engineering and Geology, University G. d'Annunzio of Chieti-Pescara
Research main topics: Human-machine interaction, Robotics, Neuroimaging and Neurosciences, Affective Computing and Remote Monitoring
Teaching: M.S. Bioengineering: Courses: 1) Data analysis and processing of biomedical signals; 2) Modelling of human natural and artificial organs; 3) Computational Psychophysiology; 4) Affective Computing

2024 President of the B.Sc. of Biomedical Engineering, University G. d'Annunzio of Chieti-Pescara

2023 Coordinator of the Ph.D. program in Digital Transition and Innovation in Health Services, Telematic University Leonardo da Vinci

2022 - 2023 Associate Professor of Electronic and Informatics Biomedical Engineering
SC: 09/G2; SSD: ING INF/06 - Department of Engineering and Geology, University G. d'Annunzio of Chieti-Pescara
Research main topics: Human-machine interaction, Robotics, Neuroimaging and Neurosciences, Affective Computing and Remote Monitoring
Teaching: M.S. Bioengineering: Courses: 1) Data analysis and processing of biomedical signals; 2) Modelling of human natural and artificial organs.

2019 – 2023 Rector's Delegate for Accademic Third Mission and Technological Transfer
University of Chieti-Pescara
In charge of organisation, management, promotion and valorisation of the public engagement, continuous education and training, MOCC, technology transfer and IP exploitation of the entire University of Chieti-Pescara.

2018 - 2021 Distinguished Visiting Professor of Biomedical Imaging and Neurosciences
Brain and Language Laboratory for Neuroimaging "BL2", Gallaudet University, Washington DC, U.S.A.
Research main topics: Affective Robotics and Avatar, Neuroimaging, Learning of Language
Teaching: M.S. and Ph.D. in Cognitive Neurosciences: Lectures: 1) Affective computing; 2) Biomedical Infrared Imaging; fNIRS

2015 - 2022 Associate Professor of Applied Physics
SC: 02/D; SSD: FIS/07
Department of Neurosciences, Imaging and Clinical Sciences, University G. d'Annunzio of Chieti-Pescara
Research main topics: Human-machine interaction, Robotics, Neuroimaging, Affective Computing and Remote Monitoring, Biomedical application of Infrared Imaging
Teaching: M.S. Dentistry: Courses: Applied Physics; Ph.D. in Neurosciences: 1) Affective computing; 2) Biomedical Infrared Imaging

2014 – to date Founder and Scientific Advisor of Next2U s.r.l.

Former spin-off of the Department of Neurosciences, Imaging and Clinical Sciences, University G. d'Annunzio of Chieti-Pescara.
Next2U srl is an innovative SME which develops and commercialize original systems and solutions for improving human-machine interaction. Next2U' systems are developed for customers from aeronautics, automotive, robotics, training and learning (www.next2u-solutions.com)

2003 – 2004 Visiting Researcher

Department of Computer Sciences, University of Houston, Houston (TX), U.S.A. Research main topics: Biomedical Imaging; Neuroimaging; Computational Psychophysiology

2002 – 2015 Assistant Professor of Applied Physics

SC: 02/D; SSD: FIS/07
Department of Neurosciences, Imaging and Clinical Sciences, University G. d'Annunzio of Chieti-Pescara
Research main topics: Neuroimaging, Affective Computing and Remote Monitoring, Biomedical application of Infrared Imaging.
Teaching: MS Dentistry: Courses: Applied Physics; Ph.D. in Neurosciences: 1) Affective computing; 2) Biomedical Infrared Imaging

2002 – to date **Director of the Infrared Imaging Research Unit**

ITAB – Institute for Advanced Biomedical Imaging; University G. d'Annunzio of Chieti-Pescara .Research main topics: Biomedical Imaging; Neuroimaging; Computational Psychophysiology; Affective computing. Under the scientific direction of Professor Merla, the Infrared Imaging Research Unit has gained very high scientific reputation at a worldwide level, up to be referred to as an international reference in the field.

2001 – 2002 **Post-Doc**

ITAB – Institute for Advanced Biomedical Imaging; University G. d'Annunzio of Chieti-Pescara. Research main topics: Biomedical Imaging; Neuroimaging; Computational Psychophysiology.

EDUCATION AND TRAINING

1998 - 2001 **Ph.D. in Biomedical Technologies**
Department of Bioimaging and Clinical Sciences, University G. d'Annunzio of Chieti-Pescara, Chieti, Italy
Biomedical Imaging; Neuroimaging; Computational Psychophysiology;

1994 -1995 **Advanced Degree in Physics**
School of Physics, University of Bologna, Bologna, Italy
Object Oriented Programming for Experimental and Didactic Physics

1988 - 1994 **M.S. in Physics**
School of Physics, University of Bologna, Bologna, Italy
Experimental Physics; Electronics; Didactic Physics, Advanced Programming

PERSONAL SKILLS

Mother tongue(s): Italian

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1

Communication skills
- Excellent communication skills gained through more than 25 years of teaching and lecturing in academia and international scientific context.

Organisational / managerial skills
- Excellent. Professor Merla has directed several research teams and participated in numerous international scientific research groups as co-PI, either in EU and US. As founder and scientific director of Next2U srl, Professor Merla has been able to bring the company at an international scientific and commercial reputation. As Rector Delegate for the University G. d'Annunzio, Professor Merla has created, organised, and coordinate several workgroups of researchers and professors, operating in several activities associated with the Third Mission. He has organized and coordinated three events of Public Engagement, like the European Night of Researchers which accounted for more than 50.000 participants in total and more than 700 units of personnel involved.

Job-related skills
- Vision and method. Strong attitude to listening and problem solving. Capability of inclusion and exploitation of other people's potentialities and know-how

Computer skills
- Good command of Microsoft tools, Matlab, Pyhton

Other skills
- Bass player / text composition

Driving licence
- B

Overall Metrics	H-Index (SCOPUS): 42, Number of documents: 228; Number of total citations:

GRANTS and FUNDINGS

2024-2025 **SKINPULSE -**

Funding Agency: Centro Nazionale "National Centre for HPC, Big Data and Quantum Computing, Spoke 6, PNRR. Role: PI Project Amount: € 525.832,65; Grant: € 446.567,36. SkinPulse integrated direct FEM bioheat thermal exchange modelling with AI for predicting vascular diseases from skin thermal LWIR imaging.

2020 - 2023 ITINERE - Innovazione per Tecnologie Indossabili e Network Evoluti di Relazioni Esperte (Innovation for Wearable Technologies and Advanced Networks of Expert Relations)

Funding Agency: MISE - Fondo Crescita Sostenibile - Sportello "Fabbrica intelligente "PON I&C 2014- 2020; Scienze della Vita; Project leader: PROGER SpA (IT); Role: co-PI and Coordinator of Research Unit; Project Amount of the Research Unit : € 1.500.000; Grant: € 432.000.

ITINERE creates the new generation of smart tissue for real time and ubiquitous monitoring of vital signs, to be adopted in telemedicine, remote monitoring of subjects in real-life contexts, according to the specific environmental and operative conditions. ITINERE integrates advanced AI based algorithms for data processing and early alarms of risk diseases, under a 5G communication network and IoT architecture.

2019 - 2022 HELIAUS - tHErmaL vIsion AUgmented awarenesS

Funding Agency: H2020-ECSEL-2018-2-RIA-two-stage; Project Leader: Lynred (FR); Role: Coordinator of Research Unit; Project Amount of the Research Unit : € 400.000; Grant: € 275.000.

HELIAUS develops the new generation of thermal IR sensing for automotive, for both in-cabin and out of cabin monitoring. Advanced algorithms for real time monitoring, based on thermal IR imaging, of vital signs od driver and occupants (drowsiness, drunkenness, thermal comfort, liveliness, healthy conditions) will foster the car cabin design and functions of incoming ADAS+ third level cars.

2019 - 2022 SI-ROBOTICS - Invecchiamento sano e attivo attraverso Soclal ROBOTICS (Healthy and active aging through Social Robotics)

Funding Agency: PON – MIUR - Progetti di ricerca Industriale e Sviluppo Sperimentale nelle 12 Aree di Specializzazione individuate nel PNR 2015-2020 - Area di specializzazione: Tecnologie per gli Ambienti di Vita ; Project Leader . Exprivia SpA (IT); Role: co-PI and Coordinator of Research Unit; Project Amount of the Research Unit : € 270.000; Grant: € 180.000.

SI-ROBOTICS has created innovative and original robotic platforms for promoting healthy and active lifestyle in aging. Computational psychophysiology module provides with real time monitoring of vital sings and biomedical parameters, as well as level of engagement and emotional feedback of elderly patients interacting with the robotic platform during cognitive and physical exercises.

2018 - 2022 Sviluppo di tecnologie e sistemi avanzati per la sicurezza dell'auto mediante piattaforme ADAS+ (Development of advanced technologies and systems for car safety through ADAS + platforms)

Funding Agency: PON – MIUR - Progetti di ricerca Industriale e Sviluppo Sperimentale nelle 12 Aree di Specializzazione individuate nel PNR 2015-2020 - Area di specializzazione: Mobilità sostenibile; Project Leader: STMicroelectronics (IT); Role: co-PI and Coordinator of Research Unit; Project Amount of the Research Unit : € 502.000; Grant: € 253.000.

The project develops multimodal in- cabin sensing for monitoring of driver. Advanced algorithms for real time monitoring, based on thermal IR imaging, ECG, PPG, provide continuous assessment of driver workload, fatigue and stress.

2016 - 2019 ASTONISH - Advancing Smart Optical Imaging and Sensing for Health

Funding Agency: H2020-EU.2.1.1.7 – ECSEL; Project Leader: Philips Medical Systems (NL). Role: co-PI and Coordinator of Research Unit; Project Amount of the Research Unit : € 480.000; Grant: € 240.000.

Development, test and validation of an innovative hybrid EEG-fNIRS system for studying neurovascular coupling in aging. Development, test and validation of an innovative hybrid ECG-PPG system for studying arterial stiffness. Development of AI based methods for disease classification.

PRESENTATIONS

Invited Lectures and Talks

More than 60 invited lectures and talks in international conferences, symposia, and university lectures

A few representative invited talks

- Infrared Stress Monitoring System, NATO Science Technical Office (NATO STO) - 42nd Human Factors and Medicine Panel Business Meeting, Portsmouth (UK), October 2018,
- Neuroscience-based approach for estimating pilot's workload and stress level. Istituto Medicina Sperimentale Aeronautica Militare, Roma, May 2018

TECHNOLOGY TRANSFER

Patents	2020 - PCT/EP2020/075774 - PCT Filing: System and method for brain tissue analysis. 2019 - 10201900016424 Italian Patent: Circuito, procedura e algoritmo per operare fotorivelatori SiPM in condizioni ottimali per sistemi fNIRS / DOT 2018 - EP14425063 European Patent: Dynamic device for the control of discharge to ground of the body weight 2013 - EP2730448A1 European Patent: Method and system for the control of the residual efficiency in the man-machine interaction 2012: RM2012A000497 Italian Patent: Metodo e sistema di controllo dell'efficacia residua d'interazione uomo-macchina
Software	2015 - SIAE 2015/000057 - INFRA-CAL: Suite software per l'individuazione di stati febbrili ed infiammatori ai gate aeroportuali mediante imaging infrarosso 2014 – 014000416 - IRI ImagePro : Software suite for processing infrared thermal data
Spin-Off	2014 – Next2U srl. Next2U srl is an innovative SME which develops and commercialize original systems and solutions for improving human-machine interaction. Next2U' systems are developed for customers from aeronautics, automotive, robotics, training and learning (www.next2u-solutions.com)

ADDITIONAL INFORMATION

Academic appointments University G. d'Annunzio	▪ 2022: Rector's Delegate for APENET: Rete Nazionale Public Engagement ▪ 2018-2019-2021, 2022: Scientific Coordinator of the event: European Night of Researcher ▪ 2019 - 2023: Rector's Delegate for Academic Third Mission ▪ 2016-2021: Member of the Technology Transfer and IP and Research Enhancement (CVRTT) ▪ 2014-2019: Member of the Libraries Committee ▪ 2002 – to date: Member of the Executive Committee of ITAB – Institute for Advanced Biomedical Technology
Other appointments	▪ 2022 – 2024: European Defense Agency- CAPABILITY TECHNOLOGY AREAS (CAPTECHS) – WG5: TBB 05 Human Machine Interface and Cognitive Ergonomics – Appointed national expert ▪ 2021-2024: NATO Science Technical Office (NATO STO) Panel of Experts - HFM-AVT-340 - Neuroscience-based Technologies for Combat-oriented Crew Cockpit Design and Operations - Appointed national expert ▪ 2018 – 2021: Brain and Language Laboratory for Neuroimaging ("BL2"), USA National Science Foundation (NSF) - Gallaudet University's Science of Learning Center Visual Language and Visual Learning "VL2" – Gallaudet University, Washington DC, USA; Distinguished Visiting Full Professor ▪ 2016: Hong Kong University – Department of Leaning Sciences – Winter School Workhop; Visiting Professor ▪ 2003 -2009: Computer Science Department, University of Houston, Houston, Tx, USA; Visiting Scientist
Editorial Activities	▪ ▪ Special Issue Editor: Biomedical Infrared Imaging: From Sensors to Applications – Sensors ▪ Special Issue Editor: The Sensors for Biomedical Imaging" – Sensors ▪ Editorial Member: Sensors ▪ Editorial Member: International Journal of Medical Engineering and Informatics ▪ Editorial Member: Temperature ▪ Reviewers for more than 40 international peer-reviewed journals
Current Research Collaborations	Ferrari S.p.A., Maranello (Mo) – Divisione Sportiva e Formula Uno (Ing. Claudio Silenzi) Leonardo Company – Divisione Elicotteri, Cascina Costa (Va) (Ing. Marco Gazzaniga Leonardo Company – Training Academy, Sesto Calende (Va) (Dott. Roberto Sanguini) Department of Psychology and Beckman Institute, University of Illinois, Urbana, Illinois, USA (Proff. Gabriele Gratton e Monica Fabiani) Department of Psychology, Gallaudet University, Washington, D.C., USA (Prof. Laura-Ann Petitto) Maryland Neuroimaging Center, University of Maryland, College Park, Maryland, USA (Prof. Kevin Niall Dunbar) Virtual Human Science Lab, University of Southern California (David Traum) Robotics Science Lab, Yale University (Brian Scassellati) Department of Medical Physics and Biomedical Engineering, University College London, UK (Dr. Ilias Tachtsidis) Technische Universität München Klinikum rechts der Isar - Psychosomatische Medizin und Psychotherapie – Munchen (D) (Prof. Heribert Sattel) STMicroelectronics, Catania (Ing. Giorgio Fallica and Sabrina Conoci).
Research Summary	Professor Merla's activity deals with the development of models, methods, procedures and systems based on thermal and near IR imaging for neurosciences, affective computing, human-machine interaction, and optical brain imaging, together with artificial intelligence-based methods. Professor Merla introduced significant advancements in touch-less and non-invasive computational psychophysiology based in facial thermal imaging, pioneering several lines of research in the field of developmental neuroscience, language development, stress and workload assessment, social robotics, automotive, and adaptive human-machine interaction. As for optical brain imaging, Professor Merla contributed the development of smart wireless infrared SiPM-based optical technologies, integration of EEG-fNIRS and computational psychophysiology, and development of original processing methods based on AI, entropy approach, modified GLM for real-time fNIRS assessment of brain activity in ecological and real life contest.

According to law 679/2016 of the Regulation of the European Parliament of 27th April 2016, I hereby express my consent to process and use my data provided in this CV

Chieti, March 8th, 2026