

Supervisor Expression of Interest

MSCA domain Information Science and Engineering (ENG)

- 1. Angelo Alessandri
- 2. Davide Anguita
- 3. Elisabetta Arato
- 4. Andrea Bacigalupo
- 5. Giovanni Berselli
- 6. Giovanni Besio
- 7. Igor Bisio
- 8. Alessandro Bottaro
- 9. Maura Casadio
- 10. Serena Cattari
- 11. Domenico Gallipoli
- 12. Sergio Lagomarsino
- 13. Flavia Libonati
- 14. Paolo Massobrio
- 15. Francesco Masulli
- 16. Renata Morbiducci
- 17. Roberto Raiteri
- 18. Cesare Rizzo



19. Fabio Solari 20. Maurizio Valle

21. Gualtiero Volpe



Supervisor Expression of Interest

First Name	Angelo
Last Name	Alessandri
Orcid ID	0000-0001-6878-9106
Other information	https://rubrica.unige.it/personale/VUZBXI50
MSCA domain	Information Science and Engineering (ENG)
Research focus area	Control of nonlinear distributed parameter systems
Department	Department of Mechanical, Energy, Management and
	Transportation Engineering - DIME
Short description of the	Topics of interest are state observers and optimal
department/laboratory/r	control of lumped and distributed parameter systems
esearch group	
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Supervisor Expression of Interest

.First Name	Davide
Last Name	Anguita
Orcid ID	0000-0001-7523-5291
Other information	https://rubrica.unige.it/personale/VUZDU1ht
MSCA domain	Information Science and Engineering (ENG)
Research focus area	Trustworthy AI
Department	Department of Informatics, Bioengineering, Robotics and Systems Engineering – DIBRIS
Short description of the department/laboratory/r esearch group	Artificial Intelligence (AI) is reaching the society at large and, therefore, that societal issues related to the use of AI cannot be ignored any longer. Our research group focuses on the design of Machine Learning and AI-based algorithms incorporating human-relevant requirements such as reliability, fairness, privacy, and interpretability, but also considering broad societal issues such as ethics and legislation.
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Supervisor Expression of Interest

First Name	Elisabetta
Last Name	Arato
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Other information	https://rubrica.unige.it/personale/VUZEWF10
MSCA domain	Information Science and Engineering (ENG)
Research focus area	Chemical and process Engineering
Department	Department of Civil, Chemical and Environmental Engineering - DICCA
Short description of the department/laboratory/r esearch group	PERT (The Process Engineering Research Team) is composed of professors and researchers of the Department of Civil, Chemical and Environmental Engineering of University of Genoa who are involved in study and research in both traditional and innovative fields of Process Engineering with particular interest in the interaction of technology and the environment for the promotion of sustainable ecological and human development. PERT is developing an efficient collaborative network with other research institutes and industrial concerns for the clean production of energy from renewable or traditional sources. PERT is involved in many national and international projects that aim to promote awareness of and attainment of common objectives in the field of Process Engineering.
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Supervisor Expression of Interest

.First Name	Andrea
Last Name	Bacigalupo
Orcid ID	0000-0002-1266-3907
Other information	https://rubrica.unige.it/personale/UkNGW1Np
MSCA domain	Information Science and Engineering (ENG)
Research focus area	Solid and Structural Mechanics, Smart materials,
	Metamaterials, Homogenization theory,
	Elastodynamics
Department	Department of Civil, Chemical and Environmental
	Engineering – DICCA
Short description of the	The members of the research group
department/laboratory/r	Metamaterials@DICCA focus their activities on
esearch group	theoretical and applied mechanics of architected
	materials and acoustic metamaterials. The main active
	research lines concern the formulation of physical-
	mathematical discrete and continuous models of
	crystal and beam lattices and other heterostructures,
	the spectral characterization and optimization of
	periodic microstructured materials, the analysis of the
	linear and nonlinear response of cellular metamaterials
	enriched by local resonators, vibration absorbers and
	inertial amplifiers. Complementary topics of interest regard the thermodynamics and multi-field coupling of
	smart materials and metamaterials with applications
	oriented to passive or active control, and energy
	harvesting. Analytical, computational and
	experimental methodologies are developed. The group
	is open to new national and international
	collaborations.



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Supervisor Expression of Interest

.First Name	Giovanni
Last Name	Berselli
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Other information	https://rubrica.unige.it/personale/UkNBXVxr
MSCA domain	Information Science and Engineering (ENG)
Research focus area	Mechatronics / Robotics
Department	Department of Mechanical, Energy, Management and Transportation Engineering – DIME
Chart description of the	1 3 3
Short description of the	1) Virtual & Physical Prototyping of Compliant
department/laboratory/r	Mechanisms and Compliant Actuators; 2) Smart-
esearch group	Material-based Transducers for Soft Robotics; 3) Bond-
	Graph Modelling of Mechatronic Systems & CAE-based
	multi-disciplinary optimization methods. 4) Digital
	Manufacturing with explicit expertise in Eco-Design
	Methods for Robotic Cells.
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Supervisor Expression of Interest

.First Name	Giovanni
Last Name	Besio
Orcid ID	0000-0002-0522-9635
Other information	https://rubrica.unige.it/personale/VUZBX19g
MSCA domain	Information Science and Engineering (ENG)
Research focus area	Coastal Engineering under Climate Change
Department	Department of Civil, Chemical and Environmental
	Engineering - DICCA
Short description of the	The research group develop its research on the field of
department/laboratory/r	Coastal Engineering under climate change, evaluating
esearch group	changes in the environmental forcing (sea waves and
	sea level) for the evaluation of hazard and rik in the
	coastla zone (erosion, structural damage, pollution,
	harbor operations)
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Supervisor Expression of Interest

.First Name	Igor
Last Name	Bisio
Orcid ID	0000-0003-3198-7306
Other information	https://rubrica.unige.it/personale/UkNHXFlq
MSCA domain	Information Science and Engineering (ENG)
Research focus area	Internet of Things, Signal Processing
Department	Department of Electrical, Electronic and
	Telecommunication Engineering and Naval
	Architecture – DITEN
Short description of the	Digital Signal Processing Laboratory
department/laboratory/r	
esearch group	
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Supervisor Expression of Interest

First Name	Alessandro
Last Name	Bottaro
Orcid ID	0000-0003-0853-2522
Other information	https://rubrica.unige.it/personale/VUZBWFtr
MSCA domain	Information Science and Engineering (ENG)
Research focus area	Fluid Mechanics
Department	Department of Civil, Chemical and Environmental
	Engineering - DICCA
Short description of the	Theoretical/numerical activity in wall-bounded
department/laboratory/r	fluid flows, with focus on
esearch group	rough/microstructured/porous/lubricant-
	impregnated/superhydrophobic surfaces.
	Homogenization theory.
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Supervisor Expression of Interest

First Name	Maura
Last Name	Casadio
Orcid ID	0000-0003-2338-8995
Other information	https://rubrica.unige.it/personale/VUZBU15v
MSCA domain	Information Science and Engineering (ENG)
Research focus area	Neural control of movements; rehabilitation
	engeenering; human-machine (computer,
	robots, etc) interfaces.
Department	Department of Informatics, Bioengineering, Robotics and Systems Engineering – DIBRIS
Short description of the	The main research goal of the group is to
department/laboratory/r	understand the underlying mechanisms of
esearch group	sensory-motor control and learning, as well as to
	address fundamental questions about the role of
	kinematic redundancy and sensory feedback in
	the control of motion and force. The study of
	motor learning is interesting for us not merely as
	a mechanism to improve a particular skill, but
	primarily as a means for the brain to adapt the
	control of a body that changes in a variable environment. We aim also at translating this
	research into the clinical practice, both in the
	assistive and rehabilitative domains, for
	improving the quality of life for people with
	neuromotor disabilities. This includes the
	development of new technology and software in
	different rehabilitation engineering domains, as
	body machine interfaces, low-cost prosthetics,
	sensory enhancement and substitution devices
	and methods. We have a long-lasting experience



	in assessment and rehabilitation (including robotics and low cost devices) for people with multiple sclerosis, stroke and spinal cord injury and we are currently working on newborn (preterm babies) and infant assessment as well as on the study of aging mechanisms and methods to promote healthy aging. The group is part of the Bioengineering Lab, inside the Department of Informatics, Bioengineering, Robotics and Systems Engineering (DIBRIS) and operates in close collaboration with colleagues working the robotics and computer science fields (including joint supervision of students). We have strong collaborations with major clinical institutions, research centers and companies working on related themes in Italy and abroad, including a joint laboratory inside the Spinal Cord Unit of the nearby Santa Corona Hospital. Lastly, I was also an MSCA fellow and I will be happy to host MSCA fellows!
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Supervisor Expression of Interest

.First Name	Serena
Last Name	Cattari
Orcid ID	0000-0001-9459-5989
Other information	https://rubrica.unige.it/personale/UkNHUl5s
MSCA domain	Information Science and Engineering (ENG)
Research focus area	Earthquake engineering, masonry buildings, risk
	assessment
Department	Department of Civil, Chemical and Environmental
	Engineering – DICCA
Short description of the department/laboratory/r esearch group	DICCA Department (in Civil, Chemical and Environmental Engineering) carries out cutting-edge research in many areas of structural engineering (wind, earthquake, geotechnical,), geomatics, hydrology, materials, and chemical engineering. In particular, main research area of Serena Cattari (SC) deal with: numerical modelling of masonry buildings; performance-based assessment of existing buildings; risk assessment at large scale; use of monitoring data for supporting the seismic assessment of strategic and existing buildings; tools to plan and support mitigation policies. In the last 10 years, Serena Cattari supervised 9 PhD students at University of Genova and 2 PhD students abroad (1 at Instituto Superior Técnico, University of Lisbon and 1 at University of Uminho, still ongoing). Moreover, she was the scientific responsible of 5 Post-doc fellows. SC is Member of PhD Executive Board of the PhD program in "Risk, Security and Vulnerability" of the University of Genoa (https://sicurezza.unige.it) and is the Coordinator of the Curriculum in "Risk and Resilience Engineering for the



	Natural, Industrialized and Built Environments". She
	has many international contacts.
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Supervisor Expression of Interest

First Name	Domenico
Last Name	Gallipoli
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Other information	https://rubrica.unige.it/personale/UkJEXFhh
MSCA domain	Information Science and Engineering (ENG)
Research focus area	Geotechnical Engineering; Earth Construction;
	Unsaturated soils
Department	Department of Civil, Chemical and
	Environmental Engineering - DICCA
Short description of the	The interests of the research group range range
department/laboratory/r	from sustainable earth building to soil testing,
esearch group	from constitutive modelling to the analysis of
	slopes, foundations, and underground waste
	disposal schemes.
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Supervisor Expression of Interest

First Name	Sergio
Last Name	Lagomarsino
Orcid ID	0000-0002-6597-3474
Other information	https://rubrica.unige.it/personale/VUZEXlpu
MSCA domain	Information Science and Engineering (ENG)
Research focus area	Earthquake engineering, seismic assessment of masonry buildings, seismic risk and vulnerability, preservation of cultural heritage
Department	Department of Civil, Chemical and Environmental Engineering - DICCA
Short description of the department/laboratory/r esearch group	The department DICCA is the best ranked in the University of Genoa and is a warm environment to develop a research, also due to the interdisciplinary expertise of the staff. The research group of conservation engineering is very strong and connected with qualified researchers in different countries. Many PhD students have spent a research period in Genova. In particular, Sergio has coordinated the European Project PERPETUATE (FP7 Programme) and many national research project funded by the Italian Civil Protection Agency. He is the author of many journals papers and chapters of scientific books; he is member of the editorial board of some journals and was guest editor of special issues. He has served in the drafting panels of the revision of Eurocode 8, Part 3: "Assessment and retrofitting of buildings", of the Italian seismic code and of the Italian Guidelines for cultural



	heritage in seismic areas. He developed the software program TREMURI, for the nonlinear seismic analysis of masonry buildings, and the Italian survey form for post-earthquake damage assessment of churches.
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Supervisor Expression of Interest

Flavia
Libonati
0000-0001-6490-1922
https://rubrica.unige.it/personale/UkJBW190
Information Science and Engineering (ENG)
Data-driven design of bio-inspired materials and systems
Department of Mechanical, Energy, Management and Transportation Engineering - DIME
The primary research interests of the group lie in the field of biological composites and biomimetic materials, with a special focus on the design and manufacturing of bio-inspired multifunctional materials for advanced engineering applications, through a multiscale numerical and experimental approach. Today the high seek for lightweight, strength, and toughness is driving the research towards the design of de novo high-performance materials. In structural applications composites generally represent the best option, offering an optimal stiffness-strength balance, combined with a low weight. Yet, their reduced toughness often represents a limitation for structural components. By solving the eternal strength-toughness conflict and providing a remarkable amplification of mechanical properties, natural hierarchical materials, such as bone, nacre, wood, may represent an optimal biomimetic model and



	continue to be a great source of inspiration for new materials design. The research of the group aims to blend computation, AI and additive manufacturing to allow an expansion of the design space, bringing it to a new level, and leading to new materials and property discovery.
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Supervisor Expression of Interest

.First Name	Paolo
Last Name	Massobrio
Orcid ID	0000-0001-8335-3407
Other information	https://rubrica.unige.it/personale/UkNGW1tp
MSCA domain	Information Science and Engineering (ENG)
Research focus area	Bioengineering, Neuroengineering
Department	Department of Informatics, Bioengineering, Robotics and Systems Engineering - DIBRIS
Short description of the department/laboratory/r esearch group	I am associate professor of bioengineering at the Department of Informatics, Bioengineering, Robotics and Systems Engineering (DIBRIS) at the University of Genova, leading a research group of Neuroengineering. My research activities fit into the field of neuroengineering, concerning both experimental and computational aspects. Within this framework, I am working on: (i) computational models of large-scale neuronal assemblies, (ii) self-organized criticality and functional connectivity in neuronal networks, (iii) characterization of the dynamics originated by interconnected brain-regions-on-a-chip coupled to Micro-Electrode Arrays.
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Supervisor Expression of Interest

First Name	Francesco
Last Name	Masulli
Orcid ID	0000-0002-6612-0932
Other information	https://rubrica.unige.it/personale/VUdCU1ps
MSCA domain	Information Science and Engineering (ENG)
Research focus area	Artificial Intelligence
Department	Dept of Informatics, Bioengineering, Robotics and Systems Engineering - DIBRIS
Short description of the department/laboratory/r esearch group	Since the mid-1980s, the Computational Intelligence Research Group has been operating at the University of Genoa Italy) and is part of DIBRIS (Department of Computer Science, Bioengineering, Robotics and Systems Engineering) from his foundation. Its activity concerns computational intelligence, i.e. the development and the application of artificial intelligence models inspired by computational processes observed in natural systems and social systems, such as evolutionary algorithms, neural networks, fuzzy logic, molecular computation and quantum computing. On a theoretical level, the group dealt with various topics related to machine learning and self-organization, while the developed artificial intelligence applications concern industry, smart community and health domains. Concerning the health sector in particular, the research group has developed several systems aimed at supporting human wellbeing and potential that integrated mobile technology (smartphones and tablets), wearable



	and environmental sensors, digital serious games, gamification, internet of objects (IoT) and virtual reality with the support of artificial intelligence technology. In 2017 the research group founded the spin-off company Vega Research Laboratories.
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Supervisor Expression of Interest

First Name	Renata
Last Name	Morbiducci
Orcid ID	0000-0002-2813-9472
Other information	https://rubrica.unige.it/personale/VUZBWF1r
MSCA domain	Information Science and Engineering (ENG)
Research focus area	Architectural Engineering
Department	Architectural and Design - DAD
Short description of the	The research group I represent deals with: analysis of
department/laboratory/r	new and existing constructions for the technological,
esearch group	functional and energy aspects; sustainable design and requalification/refurbishment; innovative materials and elements for constructions; resilience aspects (Adaptation and Mitigation) at the climate change for the construction; Life Cycle Assessment (LCA); optimization processes for constructions.
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Supervisor Expression of Interest

First Name	Roberto
Last Name	Raiteri
Orcid ID	0000-0002-1907-7855
Other information	https://rubrica.unige.it/personale/VUZCXIJq
MSCA domain	Information Science and Engineering (ENG)
Research focus area	Bioengineering, scanning probe microscopy,
	bionanotechnology, neuroengineering,
	mechanobiology
Department	Department of Informatics, Bioengineering, Robotics and System Engineering - DIBRIS
Short description of the	The main research activities of the laboratory of
department/laboratory/r	cellular and molecular bioengineering at DIBRIS
esearch group	focuse on: - in vitro characterization of biomolecules,
	cells and their interactions (e.g. protein-protein and
	protein-cell membrane interactions) - structural and
	functional (e.g. mechanical) in vitro characterization
	of biological tissues at the micro- and nano-scale -
	investigation of the molecular mechanisms of
	mechanotransduction in muscle and neuronal cells -
	development of molecular and cell pattering
	techniques - development of bioMEMS for "organ on a chip" devices
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Supervisor Expression of Interest

First Name	Cesare
Last Name	Rizzo
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Other information	https://rubrica.unige.it/personale/VUZBWF1h
MSCA domain	Information Science and Engineering (ENG)
Research focus area	Naval Architecture & Marine Engineering, Ship
	building & welded structures, analysis and
	technical management
Department	Department of Electrical, Electronic and
	Telecommunication Engineering and Naval
	Architecture - DITEN
Short description of the	Marine Structures Testing Lab of the University
department/laboratory/r	of Genova
esearch group	http://www.diten.unige.it/index.php?option=com
	_content&view=article&id=652&Itemid=707&Ian
	g=en
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Supervisor Expression of Interest

First Name	Fabio
Last Name	Solari
Orcid ID	0000-0002-8111-0409
Other information	https://rubrica.unige.it/personale/VUZCXlJr
MSCA domain	Information Science and Engineering (ENG)
Research focus area	Computational models of visual perception, and
	Human computer-interaction in Virtual and
	Augmented environments
Department	Department of Informatics, Bioengineering,
	Robotics and Systems Engineering - DIBRIS
Short description of the	The PILab research activity concerns the study of
department/laboratory/r	visual perception with the aim to design novel bio-
esearch group	inspired artificial vision systems and to develop
	natural human-computer interactions in virtual
	and augmented reality. In particular, the research
	interests are related to: (i) neural algorithms for
	motion and depth estimation, space-variant visual
	processing and scene interpretation; (ii)
	perceptual and cognitive assessment of
	virtual/augmented reality systems and (iii) the
	development of virtual/augmented reality
	systems that allow a natural experience and
Candidate fellows must	ecological human-computer interactions.
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Supervisor Expression of Interest

First Name	Maurizio
Last Name	Valle
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Other information	https://rubrica.unige.it/personale/VUZDW15s
MSCA domain	Information Science and Engineering (ENG)
Research focus area	ERC sectors: PE7_4 (Micro- and nano-) systems engineering, PE7_9 Man-machine interfaces, PE7_11 Components and systems for applications (in e.g. medicine, biology, environment). Research Area: bio-medical circuits and systems, electronic/artificial sensitive skin, embedded electronic systems for tactile sensors, tactile sensing systems for prosthetics and robotics, neuromorphic touch sensors.
Department	Department of Electrical, Electronic and Telecommunication Engineering and Naval Architecture - DITEN
Short description of the department/laboratory/r esearch group	The Polytechnic School of the University of Genoa (UNIGE) is ranked within the first three schools of engineering in Italy. The Department of Electrical, Electronic and Telecommunication Engineering and Naval architecture (DITEN), with its research groups active in Electronics, Telecommunications, Circuits and Systems, Electromagnetic Fields is a well-established centre of collaborations and contracts with the European Commission, national and international Research Agencies and Industries. It has a scientific staff of about 70 members organized in Research Units. The ICT Research Unit is active in: electronic systems, microelectronics, and



electronics for the information society, signal and processing, telecommunications, image applied electromagnetic, networks, nanotechnology, ICT biomedical applications. Among the research topics pursued by the ICT area, relevant to this project are the design and development of electronic systems and natural / artificial complex systems, together with signal and image processing. In particular, remarkable is the focus on biomedical applications. Involvement in research that leads to excellent scientific results international collaborations highly encouraged by the Department, which is acquiring increasingly important role at European level placing itself as an institution developing highly innovative technology and research. The Department also includes some major joint laboratories and spinoff companies. The research laboratory involved in the project is the Connected Objects, Smart Materials, Integrated Circuits (COSMIC) leaded by Prof. Maurizio Valle. The expertise of COSMIC lab in the research area relevant to the project consist in: Tactile sensing piezoelectric systems, polymer materials characterization, electronic skin system modelling and design, tactile data processing and information decoding, electronic embedded microelectronics, wireless sensor networks, Machine/Deep learning, IoT. maurizio.valle@unige.it

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Supervisor Expression of Interest

First Name	Gualtiero
Last Name	Volpe
Orcid ID	0000-0003-0760-4627
Other information	https://rubrica.unige.it/personale/UkNHWVls
MSCA domain	Information Science and Engineering (ENG)
Research focus area	Research concerns intelligent, affective, and social human-machine interaction. Activities address multimodal interactive systems and especially focus on real-time automatic analysis of nonverbal affective and social behavior, with particular reference to full-body movement and gesture and to social signals in small groups of users. Applications are expected in the area of education, cultural heritage, rehabilitation, and the performing arts.
Department	Department of Infomatics, Bioengineering,
	Robotics, and Systems Engineering - DIBRIS
Short description of the department/laboratory/r esearch group	Casa Paganini - InfoMus (www.casapaganini.org) carries on scientific research and design, development, and experimentation of multimodal interactive systems. Research addresses computational methods for real-time analysis of nonverbal multimodal expressive and social interaction, with a particular focus on human movement and gesture (e.g., full-body movement and dance) and sound (e.g., music and interactive sonification). Casa Paganini - InfoMus has its premises in the monumental building of S. Maria delle Grazie La Nuova in the historical center of Genova. The building is endowed with a 230-seat auditorium. A 16-cameras Qualysis



	motion capture system is installed on the stage of the auditorium, providing an ecological environment for experiments. The motion capture system is integrated with other sensor systems (including professional video cameras, microphones, activity wearable sensors, and physiological sensors) in the EyesWeb platform and can be used for synchronized recordings of multimodal data. Moreover, the whole monumental building is endowed with a technological infrastructure, including fast network, audio and video connections. Multichannel audio devices, video projectors, and Augmented Reality devices are also available at the research center.
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