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Supervisor Expression of Interest

MSCA domain Information Science and Engineering (ENG)

- 1. Prof. Giovanni Besio**
- 2. Prof. Igor Bisio**
- 3. Prof. Alessandro Bottaro**
- 4. Prof.ssa Paola Costamagna**
- 5. Prof. Michele Martelli**
- 6. Prof. Paolo Massobrio**
- 7. Prof. Francesco Masulli**
- 8. Prof. Luca Onnis**
- 9. Prof.ssa Maria Pia Repetto**
- 10. Prof. Roberto Sacile**
- 11. Prof. Fabio Solari**
- 12. Prof. Gualtiero Volpe**

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1.

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Other information	https://rubrica.unige.it/personale/VUZBX19g
MSCA domain	Information Science and Engineering (ENG)
Research focus area	Coastal Hydrodynamics and Morphodynamics Coastal Engineering Climate Change related to the coastal region (surge, waves) Coastal Flooding, Coastal Hazard, Coastal Engineering Mixing Processes in the Ocean
Department	Department of Civil, Chemical and Environmental Engineering (DICCA)
Short description of the department/laboratory/research group	The MeteOcean research group (meteocean.dicca.unige.it) carries out different activities in the field of ocean and coastal engineering related to the characterization of the dynamics of the ocean (wind, waves and current) from the mesoscale to the local scale. The main research topics are related with wave dynamics, coastal morphodynamics, coastal and ocean engineering, turbulence in geophysical flows, mixing and dispersion processes in coastal and open oceans
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MSCA domain	Information Science and Engineering (ENG)
Research focus area	Internet of Things, Ambient Intelligence, Signal Processing.
Department	Department of Naval Architecture, Electric, Electronic and Telecommunication Engineering
Short description of the department/laboratory/research group	<p>The research is developed by the Digital Signal Processing (DSP) Laboratory of the Department of Electrical, Electronic and Telecommunications Engineering and Maritime Architecture at the University of Genoa.</p> <p>The topics of interest concern the framework of the intelligent sensing in the Internet of Things (IoT) and are multiple: research works include audio sensing, wireless awareness and mobile health applications.</p> <p>All research activities aim at employing both traditional and advanced signal processing techniques (e.g., from filtering, feature extraction, feature selection to machine and deep learning) in order to perform intelligent sensing: starting from raw signals acquired by environmental sensors, gaining increasing</p>

	contextual awareness and ambitiously aspiring to wisdom.
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MSCA domain	Information Science and Engineering (ENG)
Research focus area	Fluid Mechanics: biomimetics: homogenisation theory: linear and nonlinear hydrodynamic stability, sensitivity and receptivity; active and passive flow control (URL: http://www3.dicca.unige.it/bottaro/research.html)
Department	Civil, Chemical and Environmental Engineering
Short description of the department/laboratory/research group	The research group is composed by four faculty members, all very active in a number of fluid-mechanics-related research topics, plus several doctoral students and postdocs. The activities of the group are mainly numerical and theoretical, employing a variety of home-made and commercial/opensource tools. The department hosts a good number of experimental facilities to conduct companion validation/exploration tests. The fluid dynamics group within the University of Genova ranked #1 in the last Italian Evaluation Assessment (2018).
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MSCA domain	Information Science and Engineering (ENG)
Research focus area	Fuel Cells Simulation of chemical and electrochemical reactors
Department	DCCI - Department of Chemistry and Industrial Chemistry
Short description of the department/laboratory/research group	<p>The Department of Chemistry and Industrial Chemistry (DCIC) was set up in 1996, as a result of merging the four former departments of General Chemistry, Industrial Chemistry, Physical Chemistry and Organic Chemistry within the Faculty of Mathematics, Physics and Natural Sciences.</p> <p>The department is housed in one building in Via Dodecaneso, adjacent to the Departments of Physics, Mathematics and Information Technology, and occupy the small valley of the Valle Puggia area. DCIC offers a three-year BSc degree course in Chemistry and Chemical Technologies and MSc degree courses in Chemical Sciences, Industrial Chemistry and</p>

	<p>Materials Science and Engineering; It is the associate department for the three-year MSc degree course in Materials Science. It is also responsible for teaching various branches of chemistry as part of the degree courses in Physics, Natural and Environmental Sciences, Biological Sciences, Geological Sciences and Biotechnologies. In addition, DCIC offers Phd courses in Chemical Technologies and Materials Science as well as several MSc courses.</p> <p>In a large laboratory at the Learning Centre, DCIC has set up and manages the Museo di Chimica (museum) which houses a large amount of interesting equipment dating as far back as the early 1800s. Lastly, the Department accommodates the Centro Servizi Bibliotecari di Chimica "Stanislao Cannizzaro" (library) and Working Groups of important National Inter-University Consortiums and the National Antarctic Research Programme.</p> <p>Research carried out at DCIC is divided into five Sections: Environmental and Analytical Chemistry, Physical Chemistry, Industrial Chemistry, Inorganic Chemistry and Metallurgy and Organic Chemistry. The numerous research projects in the various branches of chemistry make use of a wide range of state-of-the-art tools, often involving interdisciplinary collaboration. Research activities are organized around research projects - several dozen a year amounting to two-three million euros – funded by the University of Genoa, the Ministry of Universities and Scientific Research, the National Research Council, the European Community and</p>
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	<p>a number of national and international industrial groups.</p> <p>Paola Costamagna belongs to the research group focused on Chemical Plants, which belongs to the Industrial Chemistry Section. It is a group with a background in Chemical Engineering, focusing on the simulation of chemical and electrochemical reactors, including fuel cells.</p>
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MSCA domain	Information Science and Engineering (ENG)
Research focus area	Autonomous ship
Department	https://rubrica.unige.it/personale/VoRDXFxp
Short description of the department/laboratory/research group	<p>The research group is working on autonomous capability for surface ships. The researches are carried out from both theoretical and experimental point of view. The main streams are related to the guidance laws for surface ships, collision avoidance algorithms, weather routing, trajectory keeping algorithm, linear and non-linear control theory, modelling and simulation of both manoeuvrability and propulsion plant. Several simulators that mimic different ships dynamic behaviour are available for real-time hardware in the loop testing (PLC and/or remote control station).</p> <p>Currently, one model of a tug (scale 1:33) is available for testing purposes and one additional model of a catamaran will be available soon. Testing facilities include a small towing tank and an indoor square pool.</p>
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MSCA domain	Information Science and Engineering (ENG)
Research focus area	Bioengineering, Neuroengineering, Computational Neuroscience
Department	Department of Informatics, Bioengineering, Robotics, System Engineering (DIBRIS)
Short description of the department/laboratory/research group	<p>My research group at the Department of Informatics, Bioengineering, Robotics and Systems Engineering (DIBRIS) at the University of Genova is currently composed of two PhD students, one post-doc, and three master students of the degree in Bioengineering. Our research activities deal with the characterization of neuronal dynamics of large-scale neuronal networks coupled to Multi-Electrode Arrays (MEAs) and on the development of engineered neuronal networks to recreate modular and three-dimensional neuronal assemblies. Although a small research group, the activities are boost both by intra-department collaborations and by external academic and industrial partners.</p> <p>My rhe research activities exploit some of the facilities at the Laboratory of Bioengineering at</p>



	<p>DIBRIS. The Lab has a fully equipped cell culture facility, a chemical lab and the following main instruments and set-ups:</p> <ul style="list-style-type: none">- 3 experimental set-up for network electrophysiology based on MEAs (Multi Channel Systems; MEA1060, inv-MEA1060; MEA2100)- 1 experimental set-up for network electrophysiology based on high-density MEAs (3Brain)- 2 atomic force microscopes (AFM) (Keysight Technologies, previously Agilent Technologies, model 4000)- 1 workstation based on an inverted optical microscope (Olympus IX70)- 1 inverted optical microscopes equipped with DIC and fluorescence (Olympus IX70);- 1 up-right optical microscope (Olympus BX51)
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Last Name	Masulli
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MSCA domain	Information Science and Engineering (ENG)
Research focus area	Artificial Intelligence - Neural Networks - Fuzzy Logic - Evolutionary Algorithms- Well Being Technologies
Department	DIBRIS - Dept of Informatics, Bioengineering, Robotics and Systems Engineering
Short description of the department/laboratory/research group	Established in May 2012, DIBRIS -" Dept of Informatics, Bioengineering, Robotics and Systems Engineering" is a structure of the University of Genoa where research and education are focused on the areas of Computer Science and Technology, Bioengineering, Robotics and Systems Engineering. The mission of DIBRIS is to promote and facilitate the creation, transmission, and technology transfer of knowledge in these areas at the national and international levels. DIBRIS is involved in research projects sponsored and funded primarily by the European Commission, Italian government, and private industries. In the last few years DIBRIS has participated in about 150 industrial projects, 35 international projects and 40 national projects. In the same period of time, DIBRIS researchers have published more than



	<p>1,500 papers in peer-reviewed international journals and conference proceedings.</p> <p>The research group of "Computational Intelligence and Well-Being Technologies" is active since the 1990s in the development of models computational based on neural networks, fuzzy logic and evolutionary algorithms for the solution of complex applications of big-data analytics, IoT, data stream modeling, classification, clustering, selection of variables, data visualization, information fusion, analysis of signals and images, serious games and gamification in the areas of industrial control, smart communities and health.</p>
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MSCA domain	Information Science and Engineering (ENG)
Research focus area	We are looking for candidates interested in cross-disciplinary training to bridge their background in computational approaches (data science, network science, computer modelling, and NLP) with cognitive science and human experimental methods. We have various projects focusing on understanding the mind, in particular language emergence in individuals and societies. Over the last 20 years we have developed a solid international network of global collaborations across Europe, the US, and Asia. We are able to host and support both MSCA IF and Global scholarships.
Department	DISFOR - Department of Educational Sciences
Short description of the department/laboratory/research group	The PI has directed labs in the US and Asia, and has launched a new research team at the University of Genoa. The lab focuses on cognitive mechanisms of human learning, to explore how language emerges both in individuals and societies. We combine behavioural and computational methods including eye-tracking, NLP, network science, and computer simulation.

	For links to publications see https://www.researchgate.net/profile/Luca_Onnis
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MSCA domain	Information Science and Engineering (ENG)
Research focus area	Climate resilience of structures and infrastructures (Ports) Extreme weather risk and safety Structural and meteorological monitoring network
Department	DICCA- Department of Civil, Chemical and Environmental Engineering
Short description of the department/laboratory/research group	The Wind Engineering and Structural Dynamics (WinDyn) Research Group (www.windyn.org) at the University of Genoa (Italy) has been working in the field of wind engineering and civil engineering for more than 40 years, at the academic, educational and technical level, with a strongly interdisciplinary approach. Nowadays, WinDyn is considered a leading group in the wind engineering sector at the international level. Extreme winds events and their effects on structures and infrastructures is one of the key topics that the WindDyn is currently working on through the European Research Council funding (www.thunderr.eu).

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MSCA domain	Information Science and Engineering (ENG)
Research focus area	systems engineering, logistics, transport of dangerous goods, hazardous material logistics, system of systems, control engineering, model predictive control, optimisation, industry 4.0, power microgrid control
Department	DIBRIS - Dept of Informatics, Bioengineering, Robotics and Systems Engineering
Short description of the department/laboratory/research group	The laboratory of industrial automation works in different fields of systems engineering, as logistics, transportation, environmental sustainability, energy systems, manufacturing.
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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
Short description of the department/laboratory/research group	The Lab research activity concerns the study of visual perception with the aim to design novel bio-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 the development of systems that allow a natural experience and ecological human-computer interactions
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Other information	https://rubrica.unige.it/personale/UkNHVVIs
MSCA domain	Information Science and Engineering (ENG)
Research focus area	Research concerns intelligent and affective human-machine interaction with a particular focus on multimodal interactive systems, real-time analysis of expressive content with a particular emphasis on expressive movement and gesture, and analysis of social signals with a specific focus on emergent states in groups. Applications are expected in the area of education, cultural heritage, rehabilitation, and the performing arts.
Department	Department of Infomatics, Bioengineering, Robotics, and Systems Engineering
Short description of the department/laboratory/research 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, dance) and sound (e.g., music, interactive sonification). Casa Paganini - InfoMus has its premises in the monumental building of S.



	<p>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 e.g., 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.</p>
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