

Faculty of Engineering

Name and Surname	Organizational Unit	Keywords connected to research interests
Ervin Kamenar	Mechanical Engineering Department	Koopman operator theory, soft robotics, dynamical systems, rehabilitation robotics
Jonatan Lerga	Department of Computer Engineering	Digital signal processing, artificial intelligence, machine learning applications, image processing, time-frequency signal analysis
Kristijan Lenac	Artificial Perception and Autonomous Systems Laboratory (APASLAB) Laboratory for Applications of Blockchain Technology	Artificial Intelligence, Privacy-Preserving Technologies, Distributed Systems, Cybersecurity, Blockchain
Saša Zelenika	Precision Engineering Laboratory	Energy harvesting, optimisation, autonomous sensor networks, environmental protection, green and digital transition

SCIENTIFIC SUPERVISOR	
Name and Surname	Associate Professor Ervin Kamenar
UNIRI Faculty	Faculty of Engineering
Organisational Unit / Research Group	Mechanical Engineering Department
Research Team	Jelena Srnec Novak Tomislav Bazina
Research Interests	My team's research focuses on mechatronics, soft robotics, and robotic rehabilitation devices. Our work involves the development of such devices, utilizing machine learning and AI techniques rooted in Koopman operator theory for their modelling and control, alongside numerical analyses of their structures.
Keywords (max. 5) connected to your research interests	Koopman operator theory, soft robotics, dynamical systems, rehabilitation robotics
EU-funded project experience	<ul style="list-style-type: none"> • Optimising Design for Inspection, EU COST CA18203, 2019 – 2023 • GOLDFISH - Detection of Watercourse Contamination in Developing Countries using Sensor Networks - Enlarged (projekt br. 269985), European Union (FP7 ICT-2009.9.1), 2013 – 2015 • <i>USA NSF funded project as a part of affiliation with UCSB: Overcoming Challenges in Control of Continuum Soft Robots through Data-driven Dynamic Decomposition and Light-modulated Materials</i>, National Science Foundation. 2021→
Scientific panel	Information Science and Engineering
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SCIENTIFIC SUPERVISOR	
Name and Surname	Professor Jonatan Lerga
UNIRI Faculty	Faculty of Engineering Center for Artificial Intelligence and Cybersecurity
Organisational Unit / Research Group	Department of Computer Engineering
Research Team	Jonatan Lerga Ana Vranković Lacković Anna Maria Mihel Lucija Žužić Deni Klen Boris Gašparović Arian Skoki
Research Interests	Artificial intelligence, machine learning, deep learning Digital signal processing (denoising, time-frequency analysis, instantaneous frequency estimation) Information theory (new entropy measures, extraction of useful information content from noise), coding and cryptography Image analysis and processing Machine learning applications in medicine, remote sensing, seismology, hydrology, maritime (ship navigation), music, physics (gravitational waves), underwater image analysis, and other (e.g. sports), etc.
Keywords (max. 5) connected to your research interests	Digital signal processing, artificial intelligence, machine learning applications, image processing, time-frequency signal analysis
EU-funded project experience	<ul style="list-style-type: none"> • EU Horizon (Clean Hydrogen Partnership) "North Adriatic Hydrogen Valley" (1.9.2023.-31.8.2029.) • European project „INNO2MARE: Strengthening the Capacity for Excellence of Slovenian and Croatian Innovation Ecosystems to Support the Digital and Green Transitions of Maritime Regions“ (no. 101087348), (2023-2026) • European project European Digital Innovation Hub „EDIH Adria“, (2023-2026) • European project „STEM(AJMO!)“ funded by The European Social Fund, The Operational Programme Efficient Human Resources, call „Strengthening the Capacities of CSOs for popularisation of STEM“ (UP.04.2.1.10), (2021-2023). • Principal investigator at the Faculty of Engineering on the EU funded IRI2 project with industry (Increasing the

	<p>development of new products and services arising from research and development activities – phase II) "ABsistemDCiCloud", (no. KK.01.2.1.02.0179), (2020-2023)</p> <ul style="list-style-type: none"> • European Horizon 2020 project “National Competence Centres in the Framework of EuroHPC (EUROCC)”, (no. 1-6410-2020) H2020-JTI-EuroHPC-2019-2 (2020-2022) • Member of committee on the European scientific project CA COST "A network for Gravitational Waves, Geophysics and Machine Learning"(no. COST CA17137), (2018-2022)
Scientific panel	Information Science and Engineering
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SCIENTIFIC SUPERVISOR	
Name and Surname	Professor Kristijan Lenac
UNIRI Faculty	Faculty of Engineering
Organisational Unit / Research Group	Artificial Perception and Autonomous Systems Laboratory (APASLAB) Laboratory for Applications of Blockchain Technology
Research Team	Marina Banov, Diego Sušanj, Domagoj Pinčić
Research Interests	My main research interests are in the areas of mobile robotics, artificial intelligence and blockchain technology. I research and develop methods for secure computing to protect sensitive data and computational processes in distributed and collaborative environments. Current topics include homomorphically encrypted evaluation of neural networks in the cloud for secure biometric data processing, applications of zkProofs and distributed and verifiable computing.
Keywords (max. 5) connected to your research interests	Artificial Intelligence, Privacy-Preserving Technologies, Distributed Systems, Cybersecurity, Blockchain
EU-funded project experience	2017 – 2023, Advanced methods and technologies in Data Science and Cooperative Systems (DATACROSS), European Regional Development Fund (KK.01.1.1.01.0009), Hrvatska
Scientific panel	Information Science and Engineering
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SCIENTIFIC SUPERVISOR	
Name and Surname	Saša Zelenika
UNIRI Faculty	Faculty of Engineering (RITEH) and Centre for Micro- and Nanosciences and Technologies
Organisational Unit / Research Group	Precision Engineering Laboratory
Research Team	D. Sc. Marko Perčić D. Sc. Petar Gljušić
Research Interests	<p>1) Energy harvesting systems aimed at collecting low-level ambient energy and transducing it into electrical energy to be used in autonomous sensor nodes and networks aimed at wearable technologies, structural health monitoring, environmental monitoring, and similar.</p> <p>2) Characterisation of the complex nanotribological interactions depending concurrently on material properties, normal loads, temperature and velocity by using SPM/AFM in the Lateral Force Microscopy (LFM) mode and nanoindentation coupled to Design-of-Experiment approaches, and resulting determination of functional dependencies based on AI algorithms.</p>
Keywords (max. 5) connected to your research interests	Energy harvesting, optimisation, autonomous sensor networks, environmental protection, green and digital transition
EU-funded project experience	<ul style="list-style-type: none"> • Strengthening the capacity for excellence of Slovenian and Croatian innovation ecosystems to support the digital and green transitions of maritime regions (INNO2MARE), EU Horizon Europe (HE), 2023.-2026. • European Digital Innovation Hub Adriatic Croatia (EDIH Adria), EU DEP, 2023.-2025. • Sustainable Careers for Researcher Empowerment (SECURE), EU HE, 2023.-2024. • European Network for the Mechanics of Matter at the Nano-Scale (MecaNano), EU COST CA21121, 2022.-2026. • Open Universal Science (OPUS), EU HE, 2022.-25. • Inno4YUFE, EU EIT-HEI, 2021.-2023. • YUFE Transforming R&I Through Europe-Wide Knowledge Transfer (YUFERING), EU H2020, 2021.-2024. • Developing and Implementing hands-on training on Open Science and Open Innovation for Early Career Researchers (DIOSI), EU H2020, 2021.-22. • Optimising Design for Inspection (ODIN), EU COST,

	<p>2019.-2024.</p> <ul style="list-style-type: none"> • The role of cultural heritage in socio-economic development and preservation of democratic values (HERItage), EU H2020, 2019.-2020. • Detection of Watercourse Contamination in Developing countries using Sensor Networks (GOLDFISH Enlarged) EU FP7, 2013.-2014. • Biocrystallography on a Highly Integrated Technology Platform for European Structural Genomics (BIOXIT), EU FP6, 2004.-2005. • Handling and Assembly of Functionally Adapted Microparts, EU FP6, 2000.-2001. • Frontier, EU FP5, 1997.-1998. • Microfabrication with Synchrotron Radiation, EU FP5, 1993.-1995. • Razvoj istraživačke infrastrukture na kampusu Sveučilišta u Rijeci, ERDF, 2014.-2015. • STEM bajka, ESF, 2021.-2022.
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