Seminar

AI-Enhanced Marine Robotics for Automated Sensing, Mapping, and Ecological Monitoring

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Abstract

The talk will present the research activities of the SRV–Marine Robotics and Intelligent Systems group at the University of the Balearic Islands, combining field robotics and artificial intelligence to support marine ecosystem observation and protection.

The first part introduces the team, the SRV-MARIS robotic platforms—autonomous surface and underwater vehicles—and highlights ongoing projects addressing ecological monitoring, habitat mapping, and autonomous intervention.

The second part focuses on the application of deep learning to process underwater imagery and video data efficiently. Several real-world case studies will be presented, including *Posidonia oceanica* segmentation, integration of AUV mosaics and satellite imagery, 3D pipeline characterization, or jellyfish quantification. Together, they illustrate how AI-driven approaches can enhance the spatial and temporal resolution of marine observations, reduce operational risks, and contribute to sustainable ocean management.

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