

Research Line

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[ELOQUENCE: Multilingual and Cross-cultural interactions for context-aware, and bias-controlled dialogue systems for](#)

[MAITE MELERO NOGUES](#)



ELOQUENCE is focused on the research and development of innovative technologies for collaborative voice/chat bots.

Voice assistant-powered dialogue engines have previously been deployed in a number of commercial and governmental technological pipelines, with a diverse level of complexity. In our concept, such a complexity can be understood as a problem...

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[COMMUTE: COMORBIDITY MECHANISMS UTILIZED IN HEALTHCARE](#)
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The COVID pandemic can be seen as an experiment done with the entirety of humankind (as almost everybody has been or will get infected with SARS-CoV-2). It will therefore have the best coverage over the widest variation possible and is therefore ideally suited to study the effects of infections with SARS-CoV-2 on large quantities of heterogeneous individuals. In our project,...

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[MultiSeq: Computational multiplexing to optimise next-generation sequencing](#)
[TONI GABALDON](#)



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[MEDEWSA: Mediterranean and pan-European forecast and Early Warning System against natural hazards](#)
[ALBERT SORET](#)



Natural hazards, such as extreme weather events, are exacerbated by climate change. As a result, emergency responses are becoming more protracted, expensive, frequent, and stretching limited available resources. This is especially apparent in rapidly warming regions. MedEWSa addresses these challenges by providing novel solutions to ensure timely, precise, and actionable...

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[AVISA: Visió Artificial per donar suport a la informació en el sector agrícola](#)
[EDUARDO QUINONES MORENO](#)



Hi ha un consens compartit en el sector agrícola sobre la importància que tindrà l'agricultura de precisió com a eina imprescindible per la millora de la productivitat. L'agricultura de precisió es basa en d'eines d'anàlisis computacionals per optimitzar l'ús de recursos agrícoles, aplicant-los en aquelles parts d...

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[BIOTA: Ocean BIOgeochemistry response To refined Atmospheric iron inputs in present and future climate](#)
[MARIA GONCALVES](#)



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[deCYPhەر: Decipher CYPs by digital tools to functionalise plant metabolites](#)
[ALFONSO VALENCIA](#)



Microbial production of plant metabolites has economic & environmental benefits over traditional extraction and chemical methods. Despite initial progress & the successful market introduction of some molecules, the microbial production of oxygenated plant metabolites (OPMs) mediated by cytochrome P450 enzymes (CYPs) is still lagging, making them almost inaccessible to...

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[MLALH: MACHINE-LEARNING-DRIVEN BOTTOM-UP DESIGN OF ATOMICALLY-LAYERED HETEROSTRUCTURES FOR GREEN H₂ PRODUCTION, HA SIDO PROPUESTA PARA FINANCIACIÓN](#)
[JOSE JULIO GUTIERREZ MORENO](#)



The field of catalytic green hydrogen production, although indispensable for the transition to a renewable future, still suffers from widespread irreproducibility of results that limits its full commercialisation. The largest obstacle lies in the methods widely employed in synthesising the active catalysts, which impede unambiguously identifying the property-structure...

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[MultiSeq: A novel computational method for multiplexing Next-Generation Sequencing](#)
[TONI GABALDON](#)



The recent advances in Next-Generation Sequencing (NGS) of nucleic acids (i.e. DNA or RNA) have transformed biology and medicine. Today, NGS is one of the main pillars of research in various biological disciplines and it has already pervaded numerous fields of applications ranging from the clinics to the biotechnological industry. Given its versatility and high demand, the...

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[Inno4Scale: Innovative Algorithms for Applications on European Exascale Supercomputers](#)
[ORIOl PINEDA MARTINEZ](#)



New architectures for Exascale and post-Exascale computers will have massively parallel and heterogeneous processing capabilities that will require the complete redesign and reimplementation of the used algorithms to fully exploit the possibilities of these supercomputers. The objective of the Inno4scale project is to promote the efficient use of European HPC systems by...

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