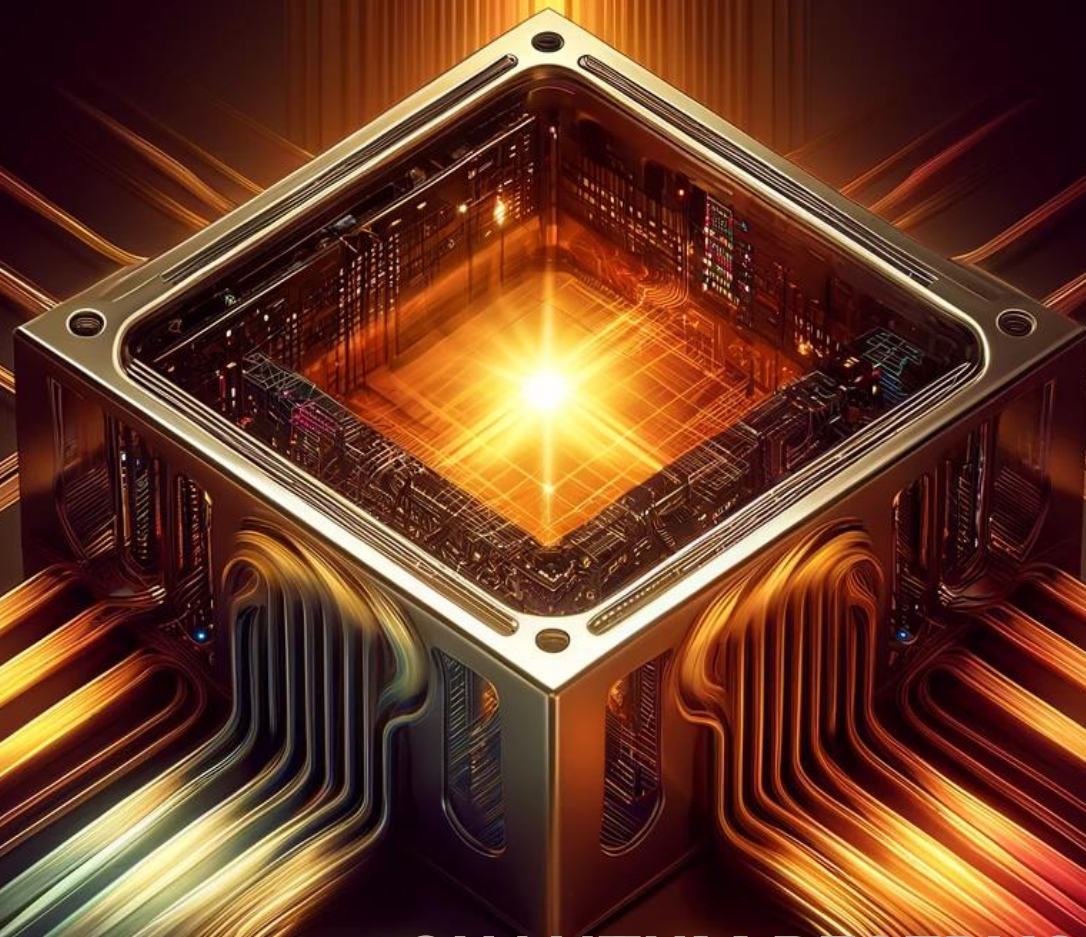# QRC-4-ESP

QUANTUM RESERVOIR COMPUTING FOR EFFICIENT SIGNAL PROCESSING

QRC-4-ESP is a project funded under the Horizon Europe programme of the European Union.

The project's main goal is to develop the first quantum reservoir computing systems utilizing superconducting qubits and silicon carbide defect qubits. This innovative approach is expected to significantly outperform existing classical machine learning systems in terms of speed and energy efficiency, with potential improvements of more than a hundredfold.

- **3 YEARS:** 1 January 2024 - 31 December 2026
- **CONSORTIUM:** 8 partners
- **GRANT AGREEMENT ID:** 101129663
- **EU CONTRIBUTION:** € 2 522 411

ABOUT
PROJECT

European
Innovation
Council

QRC-4-ESP

PARTNERS

A TEAM OF WORLD-CLASS EXPERTS WITH COMPLEMENTARY EXPERTISE TO SET NEW STANDARDS IN QUANTUM TECHNOLOGY

Leibniz Institute of Photonic Technology

Loughborough University

University of Montpellier

Linköping University

Eötvös Loránd University

Aalto University

Intelligentsia Consultants SARL

JUSTINMIND SL

GROUNDBREAKING RESEARCH

New disruptive QRC-4-ESP technology based on superconducting qubits and silicon carbide (SiC) defect qubits will create drastic improvements in speed and reduction in power consumption – two or more orders of magnitude (>100X) - compared to classical machine learning systems.

Superconducting qubits

- Strategic Choice for Satellite Communications
- Operate effectively in Microwave Range
- Minimally Disturbed by Atmospheric Conditions

Defect-based Qubits in SiC

- Ideal for Fibre-optical Networks
- Operate in Near-infrared Frequency Bands
- Enable Long-range Communications & Medical Diagnostics
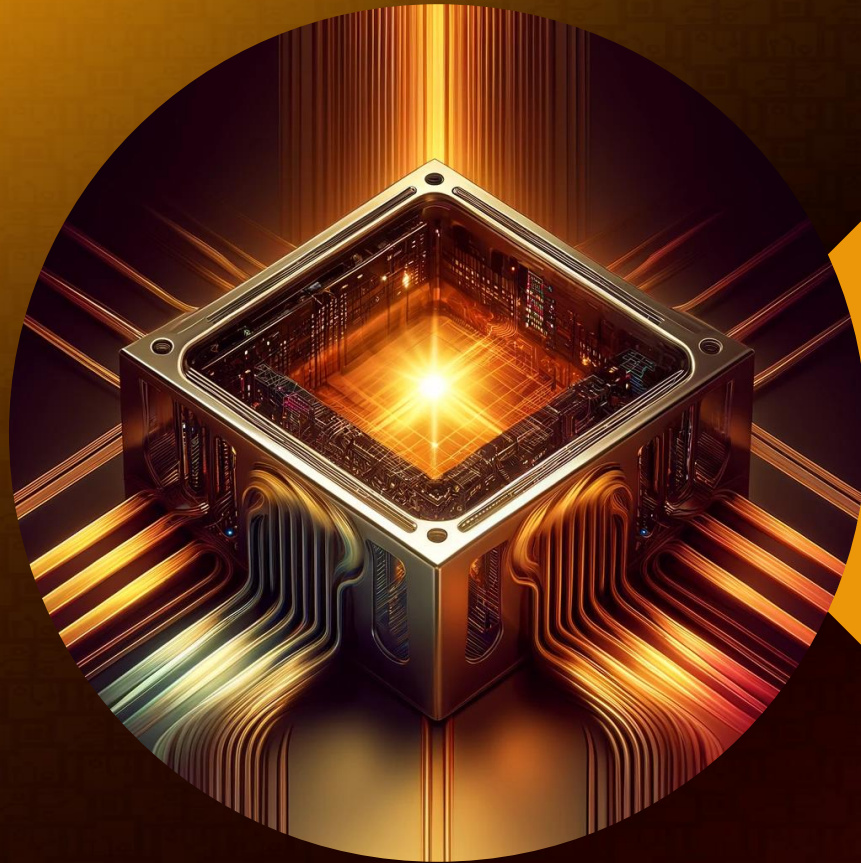
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https://www.qrc-4-esp.eu/