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Multiverse Computing and IKERLAN Detect Defects in Manufacturing with Quantum Computing Vision

New Research Shows Artificial Vision Systems on Quantum Computers Outperform Classical Counterparts in Detecting Defects in Automotive Production Line Images

SAN SEBASTIÁN, SPAIN, August 16, 2022 /EINPresswire.com/ -- Multiverse Computing, a global leader in delivering value-based quantum computing solutions, and IKERLAN, a leading center in technology transfer providing competitive value to industry, have released the results of a joint research study that detected defects in manufactured car pieces via image classification by quantum artificial vision systems.

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The research team developed a quantum-enhanced kernel method for classification on universal gate-based quantum computers as well as a quantum classification algorithm on a quantum annealer. Researchers found that both algorithms outperformed common classical methods in the identification of relevant images and the accurate classification of manufacturing defects.

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> *Ion Etxeberria, CEO of IKERLAN*

"To the best of our knowledge, this research represents the first implementation of quantum computer vision for a relevant problem in a manufacturing production line," said Ion Etxeberria, CEO of IKERLAN. "This collaborative study confirmed the benefits of applying quantum methods to real-world industrial challenges. We strongly believe that quantum computing will play a key role in providing AI-based solutions to particularly complex scenarios."

"Quantum machine learning will significantly disrupt the automotive and manufacturing

industries," said Roman Orus, Ph.D., Chief Scientific Officer at Multiverse Computing. "We are pleased to witness the value of early applications in quantum computing today, such as quantum artificial vision, and excited to enter a new era of machine learning alongside forward-thinking partners like IKERLAN as quantum technology continues to advance."

The co-authored paper, titled "Quantum artificial vision for defect detection in manufacturing," shows examples of the images analyzed by the quantum algorithms and further details the context, metrics and methods used by the researchers and can be downloaded [here](#).

About IKERLAN
Founded in 1974, IKERLAN is a leading center in technology transfer providing competitive value to industry. It offers integral solutions combining different technological domains in two main areas: Electronics, Information and Communication Technologies (EICT), and Energy and Mechatronics. The organization a co-operative member of the MONDRAGON Corporation and the Basque Research and Technology Alliance (BRTA).

About Multiverse Computing
Multiverse Computing is a leading quantum software company that applies quantum and quantum-inspired solutions to tackle complex problems in finance to deliver value today and enable a more resilient and prosperous economy. The company's expertise in quantum algorithms and quantum-inspired algorithms means it can secure maximum results from current quantum devices as well as classical high performance computers. Its flagship product, Singularity, allows professionals across all industries to leverage quantum computing with common software tools. The company also serves companies in the mobility, energy, life sciences and industry 4.0 sectors.

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