

International Conference on Artificial Intelligence and Cybersecurity (ICAIC 2025)

Conference Proceedings

November 27-28, 2025 - Japan

Drones and Environmental Monitoring: Innovative Solutions to Empower Farmers

D'Antonio P*, Fiorentino C, Modugno F, Vitelli M, Lacetra E, Fornabaio A and Toscano F

House of Emerging Technologies, Matera, Italy

Abstract

sustainable agriculture aims to meet the needs of the present without compromising the ability of future generations to meet their own agricultural needs. As the world's population continues to grow, the demand for food increases, and agricultural practices must evolve to increase productivity while minimizing environmental impact. Unmanned Aerial Vehicle (UAV) agriculture plays a crucial role in this transition, enabling farmers to adopt more sustainable practices that conserve resources and reduce waste. The integration of drones and agriculture has marked the beginning of a new era in food production. These flying devices, equipped with cutting-edge technology, offer farmers a unique perspective on their crops and enable them to make more informed decisions based on accurate and up-to-date data. Our study aims to evaluate the use of drones in southern Italy to enhance traditional products, subsequently integrating the use of AI for predictive models, and creation of Digital Twin for vineyard.