**Workshop on Machine Learning and IoT for Greenhouses: Cultivating a Sustainable Future!**

**Modality:** Presentation and discussion of practical cases and implementations

**Duration:** 1.5 hours

**Date:** October 24th, 2023

**Presenter:** Dr. Alvaro Fuentes, Jeonbuk National University, South Korea

**Workshop Description:**

We welcome you to the Workshop on Machine Learning and IoT for Greenhouses, where we will delve into the powerful fusion of agriculture and artificial intelligence. This workshop aims to engage a diverse audience of practitioners, researchers, farmers, and all enthusiasts interested in harnessing cutting-edge AI-based technology to monitor and optimize plant growth within controlled greenhouse environments.

As the world faces pressing challenges such as climate change, resource limitations, and a growing global population, it is crucial to explore innovative and sustainable practices in agriculture. Greenhouse farming has emerged as a beacon of hope in meeting these challenges, offering controlled environments that allow us to grow crops more efficiently, with minimal water usage and reduced reliance on pesticides. However, to truly unlock the full potential of greenhouse farming, we must harness the power of artificial intelligence.

During this workshop, we will embark on a journey to discover the immense possibilities that machine learning offers while addressing the challenges of transforming greenhouse practices. From automating monitoring and data collection processes to enabling predictive analytics for optimized crop yields, the applications of AI in agriculture are limitless.

**Workshop Highlights:**

1. **Foundations of Machine Learning in Greenhouse Farming:** We will begin by providing an overview of machine learning techniques, and exploring how they can be applied to greenhouse settings. Understanding the fundamentals is essential to appreciate the immense potential, challenges, and implications of AI in this field.
2. **Monitoring and Sensing Technologies:** Explore the advancements in sensor technologies, IoT devices, and data acquisition systems that empower us to collect

real-time information on various greenhouse parameters. Learn how to utilize this data effectively to make informed decisions.

3. **Predictive Analytics for Crop Yield Optimization:** Discover how machine learning models can predict crop yields, plant health, and disease outbreaks based on historical data and environmental factors. Implementing such models can help us optimize resource allocation and improve overall greenhouse productivity.
4. **Automated Control Systems:** Delve into the realm of automated control systems for greenhouses. Explore how AI can be leveraged to regulate environmental factors like temperature, humidity, and light to create the ideal growth conditions for different crops.
5. **Challenges and Ethical Considerations:** While AI offers immense promise, it also presents challenges and ethical considerations. We will address issues such as data privacy, algorithm biases, and the importance of human supervision in AI-driven greenhouse farming.

**Interactive Session:**

Throughout the workshop, we encourage active participation from all attendees. Feel free to ask questions, share your experiences, and engage in discussions to foster a collaborative learning environment.

Our ultimate goal is to provide an overview of the knowledge and insights needed to embrace AI-based technologies confidently, making a positive impact on the future of agriculture and our planet.

Thank you for joining us on this exciting journey, and let's work together to cultivate a sustainable future through Machine Learning and IoT in Greenhouses!

*Please come with enthusiasm, curiosity, and a desire to explore the endless possibilities of AI in agriculture.*