Sixth IEEE international conference on Image Processing Applications and System

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Call for Special Session Submissions

Revolutionizing Waste Management: AI-Driven Innovations for Efficient Sorting and Recycling

Session chair: Mouna Zouari

Abstract -In this session, we will explore the transformative impact of Artificial Intelligence (AI) on waste management and sorting systems, addressing the pressing need for sustainable waste management practices amidst growing global waste generation. The session will showcase cutting-edge research and practical applications, delving into the latest advancements in AI-powered technologies for sorting and recycling, highlighting their potential to revolutionize waste management processes and promote a circular economy. We will examine advanced computer vision techniques, including convolutional neural networks and deep learning algorithms, for identifying and classifying diverse waste materials, including complex recyclables and hazardous waste. We will explore the integration of AI-driven robotics and automation systems for efficient and precise waste sorting, including advanced robotic manipulation and control algorithms for handling complex waste items. Furthermore, we will discuss the use of AI for real-time monitoring of waste streams, leveraging machine learning algorithms and data analytics for identifying patterns, predicting future waste generation, and optimizing waste management strategies and resource allocation. We will also investigate AI applications for predictive maintenance of waste management infrastructure, utilizing machine learning models for anomaly detection and predictive modeling to maximize uptime, reduce downtime, and improve operational efficiency. Additionally, we will explore how AI can support informed policy decisions related to waste management and recycling, including the development of smart waste management systems and effective waste diversion strategies, leveraging data-driven decision-making and simulation models. This session is designed for researchers, industry professionals, policymakers, and students working in the fields of AI, waste management, recycling, environmental engineering, robotics, computer vision, data analytics, and sustainable development, and will feature a mix of presentations, discussions, and case studies, fostering a dynamic exchange of knowledge and collaboration among participants. We invite submissions of original research papers, technical demonstrations, and case studies related to the application of AI in waste management and sorting systems, with a focus on innovative AI techniques, practical implementation challenges, and real-world applications that demonstrate the transformative potential of AI in waste management.

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