Special Issue Reprint

Deep Learning in Video and Image Processing

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The Reprint titled "Deep Learning in Video and Image Processing Challenges Solutions and Future Directions" presents a comprehensive collection of high-quality research addressing the growing demand for intelligent visual systems operating in real time. This Reprint focuses on the practical deployment of deep learning and machine learning techniques for video and image processing on edge devices with limited computational resources. It highlights recent advances that enable efficient model execution under strict constraints related to power consumption memory capacity and processing speed. The Reprint covers a wide range of topics, including lightweight neural network architectures, algorithm optimization, hardware–software co design, and energy-efficient learning models. Emphasis is placed on real-world applications where low latency and on-device intelligence are critical, such as medical imaging, surveillance systems, autonomous driving, smart city monitoring, industrial automation, and wearable health devices. Unlike conventional cloud-based solutions, this Reprint promotes localized data processing to reduce latency enhance privacy and improve system reliability. By bridging theoretical research and practical implementations, the collected works provide valuable insights into scalable and deployable edge intelligence solutions. This Reprint serves as a key reference for researchers, engineers, and practitioners seeking to design robust real-time visual processing systems.

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