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VISUAL TRANSFORMERS FOR INDUSTRIAL IMAGE INTELLIGENCE: FROM RETRIEVAL TO KNOWLEDGE-DRIVEN WORKFLOWS

05/12/2025, 11:30 h

Speaker

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Red Lynx

Abstract

Visual transformers are reshaping industrial computer vision by unifying representation learning, region-aware perception, and metadata fusion within a single scalable pipeline. This talk surveys how technical drawings, component photos, and PDF schematics can be indexed through automatic ROI extraction, transformer-based embeddings, and ERP/MES data alignment to support rapid similarity search, semantic filtering, and decision support across archives of tens of thousands of assets. We discuss practical design choices—patch-level detection, multi-modal embeddings, asynchronous progress tracking, and PDF reporting—that enable engineers to retrieve prior work, compare variants, and maintain living repositories of manufacturing knowledge. The resulting workflows illustrate how transformer-driven visual search bridges descriptive data and imagery, accelerating design reuse and collaborative diagnostics in industrial settings.