



Title: AI-Powered Vision Inspection for Glass: Opportunities and Risks

This presentation explores the AI revolution in glass manufacturing, focusing on advanced vision inspection systems that support both performance excellence and sustainability. As industry requirements evolve toward higher quality standards, faster production, and full inspection coverage, traditional systems face limitations. AI-driven approaches provide a transformative solution for more accurate, scalable, and robust inspection.

The proposed framework combines three complementary technologies: semantic segmentation, object detection, and anomaly detection. These methods rely on high-quality data generated by advanced sensors, including HDR infrared cameras and emerging 3D monitoring systems, which are essential to ensure reliable AI performance. Together, they enable precise defect identification, including unknown anomalies, while maintaining high-speed processing.

By significantly reducing false positives, AI inspection directly contributes to sustainability goals by minimizing glass cullet, reducing waste, and lowering energy consumption in remelting processes.

However, successful deployment depends on data quality, computational resources, and real-time constraints. Looking ahead, the evolution toward Autonomous Machine Intelligence will further enhance decision-making and system adaptability, supporting the “Glass Forward” vision of smarter, more sustainable manufacturing.