This thesis addresses the development of a software pipeline for defect inspection of threaded inserts from video scans. The pipeline has two main components: the One Image Overview (OIO) generation and Depth Map (DM) estimation. The OIO pipeline, based on classic computer vision methods, was successfully demonstrated, producing interpretable and reliable outputs for inspection. The DM pipeline, based on fine-tuning the Depth Anything V2 model, showed promising results, especially after synthetic domain adaptation, but also revealed significant challenges due to limited real-world training data. The use of domain-adapted synthetic data was explored as a proof of concept. Parallelization strategies and alternative approaches, such as segmentation–classification workflows, are discussed for future development and deployment. The system forms a foundation for further development toward real-time automated inspection of safety-critical components.