



54th CIRP Conference on Manufacturing Systems

Adaptive Spatial Augmented Reality for Industrial Site Assembly

Patrick Rupprecht^{a,*}, Hans Kueffner-McCauley^a, Majesa Trimmel^a,
Sebastian Schlund^a

^a*Human-Machine Interaction Group, Institute of Management Science, Technische Universität Wien (TU Wien), Theresianumgasse 27, 1040 Vienna, AUSTRIA*

* Corresponding author. Tel.: +43 664 5523442; E-mail address: patrick.rupprecht@tuwien.ac.at

Abstract

Today, industrial assembly of large components is mostly organized as site assembly. The human-centered information provisioning for assembly tasks still bears significant optimization potential. The paper presents first results of the integration of a dynamic projection system with visual human position and gesture recognition. Work instructions and other relevant information is displayed relative to the humans' position within a large workspace. A high-resolution RGB-camera as well as the real-time object recognition algorithm YOLOv3, have been integrated into a proof-of-concept demonstrator. An evaluation at the TU Wien Pilot Factory shows the potential in terms of efficiency, usability and cognitive workload.

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Peer-review under responsibility of the scientific committee of the 54th CIRP Conference on Manufacturing System

Keywords: Adaptive Spatial Augmented Reality; real-time object recognition; industrial site assembly
