

# Preface

The present joint conference proceedings “Kommunikation in der Automation” (KommA, Communication in Automation) and “Bildverarbeitung in der Automation” (BVAu, Image Processing in Automation), an anniversary publication on the occasion of the 10-year anniversary of the Institute Industrial IT (inIT), are based on the contributions of the two scientific annual colloquia KommA 2016 and BVAu 2016. In a second reviewing process 22 contributions have been selected which are now published in these conference proceedings. A total of 42 contributions were submitted.

The publication is thematically arranged in the context of industrial automation applications.

The industrial communication has its roots in Germany and has been the backbone of each decentralised automation system for more than 20 years. In future, the smart networking will play an even more important role under the label of Industry 4.0. However, the application of information technologies is highly challenging because these often have been designed for other purposes than industrial use. With respect to networking, being typical for Industry 4.0, reliable and safe communication systems become increasingly significant.

The KommA deals with all aspects belonging to the design, development, commissioning, and diagnostics of reliable communication systems, as well as their integration into distributed automation architectures. In this context, the application of internet technologies and the system management of large, heterogeneous systems play an essential role.

Industrial image processing and pattern recognition aims for processing image information from automation systems under the aspects of process real-time, stability, and limitation of resources. In view of an industrial systems holistic approach, image data as well as expert knowledge are consulted as information sources. Industrial image processing will further be established as a key enabler technology in producing companies in the context of their quality assurance via optical measurements strategies, machine conditioning and product analysis, as well as Human-Computer Interaction.

The BVAu 2016 sets a thematic focus on industrial image processing systems with multi-spectral analysis and diagnosis, technical aspects of image processing, methods of image processing and pattern recognition for real-time systems as well as their areas of application. Today, interdisciplinary approaches based on technology, biology, and perceptual psychology are offering new, forward-looking solutions. It is evident that distributed image processing is significantly gaining importance. Multi- and hyperspectral imaging is showing first results and will begin to enter the field of food and medical technology.

We hope that you enjoy reading this anniversary publication.

Lemgo, in October 2017  
Jürgen Jasperneite

Volker Lohweg

Kommunikation und Bildverarbeitung in der Automation  
Ausgewählte Beiträge der Jahreskolloquien KommA und  
BVAu 2016 zum 10jährigen Jubiläum des inIT - Institut  
für industrielle Informationstechnik  
Jasperneite, J.; Lohweg, V. (Hrsg.)  
2018, X, 295 S. 152 Abb., Softcover  
ISBN: 978-3-662-55231-5