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Adaptive Learning of Context for Pattern Recognition



prof. Marcin Grzegorzek
Research Group for Pattern Recognition,
Universitat Siegen, Germany



ABSTRACT: Existing pattern recognition approaches can be roughly divided into two categories. The first ones (scientific methods) are very generic and methodologically advanced, but they feature limited robustness in real-world environments and, therefore, cannot be applied in concrete application domains without significant and expensive modifications. The second ones (industrial systems) solve very concrete problems from concrete application domains taking into consideration problem-specific features and, therefore, cannot be applied to other pattern recognition tasks without significant and expensive re-engineering.

In this talk the concept of pattern recognition approaches will be presented that, on the one hand, remain generic and methodologically universal, but on the other hand, make use of domain-specific knowledge modelled as ontologies and can adapt to specific application domains. It will be explained for Marcin Grzegorzek's current research fields, namely object recognition, multimedia retrieval, behavioural biometry, as his developments in this areas share exactly these two commonalities. Firstly, they show how generic pattern recognition systems can benefit from context information (domain knowledge), if it is available. Secondly, they adaptively optimise the data representation in runtime in terms of its discriminative properties.

SHORT BIO: Marcin Grzegorzek is Assistant Professor at the University of Siegen heading the Research Group for Pattern Recognition in the Institute for Vision and Graphics. Currently, he is also Fellow of the Think Tank "Stiftung Neue Verantwortung" in Berlin where he leads the project "Cognitive Robotics". Furthermore, he is Principal Investigator in the Research Training Group 1564 "Imaging New Modalities". Marcin received his Master's Degree from the Silesian University of Technology in Gliwice in 2002 and PhD with distinction from the University of Erlangen-Nuremberg in 2007. From 2006 to 2008 he was Research Assistant at the Queen Mary, University of London. From 2008 to 2010 he worked as Lecturer for the University of Koblenz-Landau.

He was General Chair of the SAMT 2010, the 5th International Conference on Semantic and Digital Media Technologies. Moreover, he is Guest Editor of the MTAP (Multimedia Tools and Applications) Journal and acts as a Secretary in the Executive Board of the SMaRT (Semantic Multimedia Research and Technology) Association. His research interests include multimodal object recognition and scene analysis, semantic multimedia analysis and retrieval, as well as behavioural biometry and medical image processing. He is author and coauthor of more than 40 papers.



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