

# Challenges from Industrial Data Analytics

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## ABSTRACT

Big data applications in industry pose a number of unique challenges, setting them apart from domains such as consumer analytics in the web. Central for many industrial applications is time series data generated by often hundreds or thousands of sensors at a high rate, e.g. by a turbine. Another important data source are log files generated by control units in complex technical equipment, e.g. PLCs (programmable logic controller). This data can be used for failure statistics, root cause analysis, predictive maintenance, or for optimizing the performance during product design. Especially interesting are use cases that combine in-situ streaming analytics inside the local devices with centralized information, e.g. time series data collected from a whole fleet of wind turbines. In this talk I will describe a number of Siemens's machine learning applications, especially failure diagnostics at the CERN Large Hadron Collider, self-optimizing wind turbines, and levee monitoring for Waternet Amsterdam. I will also discuss architectural challenges for such systems from a Big Data point of view.

search Networks in Data Mining and Machine Learning at the European level, and he was local chair of ICML 2005. He did his PhD on machine discovery of causal relationships at the Graduate Programme for Cognitive Science at the University of Hamburg

## Short Bio

Michael May is Head of the Technology Field Business Analytics & Monitoring at Siemens Research and Technology Center, and responsible for ten research groups in Munich, Vienna, Brasov, St. Petersburg, Princeton, and Berkeley. He is driving research at Siemens in data analytics and big data architectures and implements with his teams data analytics solutions across Siemens. Before joining Siemens in 2013, he was Head of the Knowledge Discovery Department at the Fraunhofer Institute for Intelligent Analysis and Information Systems in Bonn, Germany. In cooperation with industry he developed Big Data Analytics applications in sectors ranging from telecommunication, automotive, retail, logistics to finance and advertising. Michael was responsible for a number of National and European funded research projects in the area of Data Mining, Machine Learning, and Big Data. Between 2002 and 2009 he coordinated two Re-