

Preface

Data is the coming resource of the 21st century, e.g. the market capitalization of Google has already achieved almost the value of Exxon Mobil. In the future, this trend will continue for Cyber Physical Systems: E.g. globally connected production systems optimize automatically their energy consumption (keyword: Industrie 4.0), cars react dynamically to the driving behavior of other road users and trains detect wear effects beforehand.

This huge amount of generated data leads to completely new and unresolved challenges for data analysis and machine learning: McKinsey estimates that almost 2 Exabyte of new data were generated in the manufacturing industry in 2010. The amount of data prohibits any manual analysis, e.g. by classical data scientists.

The solution can only be the use of highly automated machine learning methods. But most of these methods do not consider peculiarities of technical systems: The dynamic time behavior is not modeled, control signals and the resulting behavior changes of hybrid systems are not captures and physical knowledge is not used.

Therefore the conference ML4CPS aims at bringing experts from science and industry together to discuss current demands on machine learning for Cyber Physical Systems and match them with recent results from the scientific community.



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