Carl von Ossietzky University of Oldenburg
Safe Automation of Maritime Systems

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Title: **Wind prediction with machine learning**

Abstract: Wind energy is playing an increasingly important part for ecologically friendly power supply. The fast growing infrastructure of wind turbines can be seen as large sensor system that screens the wind energy at a high temporal and spatial resolution. The resulting databases consist of huge amounts of wind energy time series data that can be used for prediction, controlling, and planning purposes. In this talk, I describe WindML, a Python-based framework for wind energy related machine learning approaches. The main objective of WindML is the continuous development of tools that address important challenges induced by the growing wind energy information infrastructures. Various examples that demonstrate typical use cases are introduced and related research questions are presented. The different modules of WindML reach from standard machine learning algorithms to advanced techniques for handling missing data and monitoring high-dimensional time series.

Short - CV: Oliver Kramer is Juniorprofessor for Computational Intelligence at the University of Oldenburg in Germany. His main research interests are machine learning, evolutionary optimization, and the application of computational intelligence techniques to renewable energy systems. He received a PhD from the University of Paderborn, Germany, in 2008. After a postdoc stay at the TU Dortmund, Germany, from 2007 to 2009, and the International Computer Science Institute in Berkeley (USA) in 2010, he became Juniorprofessor at the Bauhaus University Weimar, Germany. Since August 2011 he is affiliated to the Department of Computing Science at the University of Oldenburg, where he finished his habilitation in 2013.