Deutscher Mustererkennungspreis 2012

Laudatio für Prof. Dr. **Andreas Krause**

The German Pattern Recognition Prize 2012 is awarded to Andreas Krause in recognition of his pioneering work on **submodular optimization in machine learning and artificial intelligence**. Andreas Krause has been an assistant professor at the California Institute of Technology from 2009-2011 and he is currently an assistant professor at the Eidgenössische Technische Hochschule Zürich.

Andreas Krause has gained wide recognition for his highly innovative work in submodular optimization for machine learning and artificial intelligence problems. He has theoretically developed these concepts in machine learning and has contributed a suite of new algorithms with provable approximation guarantees. On the practical side, he has demonstrated the effectiveness of these algorithmic concepts and methods in distributed sensing and decision problems, experimental design, and active learning problems. The impact of these methods can be observed in applications ranging from optimal sensor placement in water distribution networks to information gathering on the web to earthquake detection using community-based sensors. In particular, sensor placement in water distribution networks can be currently best achieved with submodular optimization as recognized by the *American Society of Civil Engineers*.

Current research on adaptive submodularity promises to provide new algorithmic solutions for Partially Observable Markov Decision Processes which are known to pose an extremely difficult challenge in robotics and AI planning problems. We are looking forward to his future work and its impact in innovative areas like information retrieval and *Computational Sustainability*.

Please join me to welcome Andreas Krause for his award lecture.