**Vortrag 1: Donnerstag, 16. Oktober, 16:30h**

Raum 2359/222, 9222 (Gebäude E3)

Title:

**>From Models to Solvers: Models and Techniques for General Intelligence**

Hector Geffner

ICREA & Universitat Pompeu Fabra

Barcelona, SPAIN

Abstract:

Artificial Intelligence is a brain child of Alan Turing and his universal programmable computer. During the 60s and 70s, AI researchers used computers for exploring intuitions about intelligence and for writing programs displaying intelligent behavior. After the 80s, however, many researchers moved away from the early paradigm of writing programs for ill-defined problems to writing solvers for perfectly well-defined but intractable mathematical models like Constraint Satisfaction Problems, Bayesian Networks, STRIPS Planning, SAT, and Partially Observable Markov Decision Processes. Solvers are programs that take a compact description of a particular model instance and automatically compute its solution. Unlike the early AI programs, solvers are general as they must deal with any instance that fits the model. This presents a crisp computational challenge as all these models are intractable in the general case. In the talk, I revisit the problem of generality in AI, look at the way in which this 'Models and Solvers' agenda addresses the problem, and discuss the relevance of this agenda to the grand AI goal of a computational account of intelligence and human cognition.

**Vortrag 2: 21 Oktober, 16:00h**

Raum-Nr.: 2359/222, 9222 (Gebäude E3)

Title:

**The Model-based Approach to Autonomous Behaviour: Models, Heuristics, Challenges**

Hector Geffner

ICREA & Universitat Pompeu Fabra

Barcelona, SPAIN

Abstract:

One of the central problems faced by autonomous agents is the selection of the action to do next. In AI, three approaches have been used to address this problem: the programming-based approach, where the agent controller is hardwired, the learning-based approach, where the controller is learned from experience, and the model-based approach, where the controller is derived from a predictive model. Planning in AI represents the model-based approach to the action selection problem where the models represent the current situation, the actions, the sensors, and the goals. The main challenge in planning is computational, as all the models, whether accommodating feedback and uncertainty or not, are intractable. In this talk, I'll review some the models considered in current planning research, the progress achieved in solving these models, and some of the ideas that have turned to be most useful computationally.

**Biography:**

Hector Geffner

ICREA & Universitat Pompeu Fabra

Barcelona, SPAIN

Hector Geffner is an ICREA Research Professor at the Universitat Pompeu Fabra in Barcelona where heads the AI group. He was born and raised in Buenos Aires, and received an EE degree from the Universidad Simon Bolivar in Caracas, and a PhD in CS from UCLA. After his PhD, he worked at the IBM T.J. Watson Research Center in New York, and at the Universidad Simon Bolivar in Caracas. Hector is a fellow of AAAI and ECCAI, Associate Editor of Artificial Intelligence and former Associate Editor of the Journal of Artificial Intelligence Research. He is the author of the book Default Reasoning, MIT Press, 1992, co-editor with Rina Dechter and Joe Halpern of "Heuristics, Probability and Causality: A Tribute to Judea Pearl", College Publications, 2010, and co-author with Blai Bonet of "A Concise Introduction to Models and Methods for Automated Planning", Morgan and Claypool, 2013. His work has received distinctions that include the 1990 ACM Dissertation Award, an IJCAI-JAIR Award, and the 2009, 2010, and 2014 ICAPS Influential Paper Awards.