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His current research includes embodied machine intelligence, motivated goal driven learning, self-organizing associative spatio-temporal memories, active learning of sensory-motor interactions, machine consciousness, as well as applications of machine learning to autonomous robots and avatars.

Motivated Machine Learning for Water Resource Management

Janusz Starzyk

Water resources planning and management require problem resolution and optimized use of resources. Since many objectives in water management are conflicting, it is hard to devise one optimum strategy. A simulation tool capable of optimized multi-objective analysis to satisfy multiplicity of goals is needed to support water decision making. This paper suggests an integrated modeling framework to assist with time consuming and difficult tasks of decision making by water management practitioners and to harmonize economic uses of water resources. Motivated machine learning, presented in this paper, supports intelligent decision making process in dynamically changing environment and could be used to consider alternative water management policies. Motivated learning systems learn to properly control the environment with competing goals. They provide a natural support for multi-objective decision making in active search for balance between conflicting situations and adverse environmental conditions. A case study of optimized machine learning water management decisions is presented.