

This TC is established in 2008.

Technical Committee on Adaptive Dynamic Programming and Reinforcement Learning
IEEE Computational Intelligence Society

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(3) Task Forces

3.1 Complexity issues in ADP and RL

Chair: Remi Munos

Scope: Numerical complexity of solving ADP and RL problems: amount of numerical resources required to obtain near-optimal performances. Sample complexity for RL: number of calls to the generative model (or the real system) required to build a near-optimal approximations.

3.2 Important applications of ADP and RL

Chair: John Rust

Analysis of power grid cascades and other cascades in man-made systems, analysis of evolution of epidemics, evolution of the stock market, optimal trading of commodities. There are also a large numbers of applications in economics, management science and other areas, and often they are less abstract and theoretical and tries to make actual, measurable, concrete contributions to improve decision making by firms, governments and other organizations.

3.3 Representation in ADP and RL

Chair: Philippe Preux

In ADP and RL, we need a function approximator to represent the learned function, either the value, or the policy, or a model of the dynamics. Tools used for such approximation includes neural networks and many others. There are also issues on how to represent a state in order to achieve the best learning curve. Many issues are intertwined here, ranging from fundamental issues, to algorithmic ones, and practical ones.