

Partial Policy Iteration for L1-Robust Markov Decision Processes



Dr. Chin Pang Ho

City University of Hong Kong

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Abstract:

In recent years, robust Markov decision processes (MDPs) have emerged as a prominent modeling framework for dynamic decision problems affected by uncertainty. Solving even medium-sized problems, however, can be quite challenging. Rectangular robust MDPs can be solved in polynomial time using linear programming but the computational complexity is cubic in the number of states. This makes it computationally prohibitive to solve problems of even moderate size. We describe new methods that can compute Bellman updates in quasi-linear time for common types of rectangular ambiguity sets using novel bisection and homotopy techniques.

Biography:

Clint Chin Pang Ho is an Assistant Professor in the School of Data Science at the City University of Hong Kong. He received a BS in Applied Mathematics from the University of California, Los Angeles (UCLA), an MSc in Mathematical Modeling and Scientific Computing from the University of Oxford, and a PhD in computational optimization from Imperial College London. Before joining CityU, Clint was a Junior Research Fellow (now known as Imperial College Research Fellow) in the Imperial College Business School. His current research focuses on computational optimization and operations research, as well as their applications in machine learning, transportation, and robotics.

Your attendance is most welcome!

