Record Nr. UNINA9910812661003321 Reinforcement learning and dynamic programming using function **Titolo** approximators / / / Lucian Busoniu. [et al] Pubbl/distr/stampa Boca Raton:,: CRC Press,, 2010 **ISBN** 1-351-83382-0 1-315-21793-7 1-282-90296-2 9786612902963 1-4398-2109-7 Descrizione fisica 1 online resource (285 p.) Collana Automation and control engineering Altri autori (Persone) BusoniuLucian Disciplina 629.8/9 Soggetti Digital control systems Dynamic programming Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Nota di bibliografia Includes bibliographical references and index. Nota di contenuto Cover; Title; Copyright; Preface; About the authors; Contents; 1 Introduction; 2 An introduction to dynamic programming and reinforcement learning; 3 Dynamic programming and reinforcement learning in large and continuous spaces; 4 Approximate value iteration with a fuzzy representation; 5 Approximate policy iteration for online learning and continuous-action control; 6 Approximate policy search with cross-entropy optimization of basis functions; Appendix A: Extremely randomized trees; Appendix B: The cross-entropy method; Symbols and abbreviations; Bibliography; List of algorithms; Index Sommario/riassunto From household appliances to applications in robotics, engineered systems involving complex dynamics can only be as effective as the algorithms that control them. While Dynamic Programming (DP) has provided researchers with a way to optimally solve decision and control problems involving complex dynamic systems, its practical value was limited by algorithms that lacked the capacity to scale up to realistic problems. However, in recent years, dramatic developments in Reinforcement Learning (RL), the model-free counterpart of DP, changed our understanding of what is possible. Those dev