Multi-Agent Machine Learning. A Reinforcement Approach

Description: The book begins with a chapter on traditional methods of supervised learning, covering recursive least squares learning, mean square error methods, and stochastic approximation. Chapter 2 covers single agent reinforcement learning. Topics include learning value functions, Markov games, and TD learning with eligibility traces. Chapter 3 discusses two player games including two player matrix games with both pure and mixed strategies. Numerous algorithms and examples are presented. Chapter 4 covers learning in multi-player games, stochastic games, and Markov games, focusing on learning multi-player grid games two player grid games, Q-learning, and Nash Q-learning. Chapter 5 discusses differential games, including multi player differential games, actor critique structure, adaptive fuzzy control and fuzzy interference systems, the evader pursuit game, and the defending a territory games. Chapter 6 discusses new ideas on learning within robotic swarms and the innovative idea of the evolution of personality traits.

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