PART V:

MULTIAGENT SYSTEMS

Up to this point, we have focused on decision making from the perspective of a single agent. We now extend the core concepts we have discussed so far to problems involving multiple agents. In multiagent systems, we can model other agents as potential allies or adversaries and adapt accordingly over time. These problems are inherently challenging due to complexities surrounding agent interactions and agents reasoning about other agents who reason about the agent, and so on. Chapter 24 introduces multiagent reasoning in games and outlines how to compute equilibria from simple interactions. Chapter 25 discusses how to design algorithms for multiple agents interacting over time, describing learning algorithms that favor rational adaptation over convergence to equilibria. Chapter 26 shows that state uncertainty significantly increases the complexity of the problem, emphasizing the distinct challenges in such domains. Chapter 27 focuses on the various models and algorithms for collaborative agents that strive to work together toward a common goal.