EE682 Game Theory for Wireless Communications

Games with Perfect Information(Theory With Examples)

1. Brief Revision of Normal Games, Nash Equilibrium, Utility Theory
2. Mixed Strategies
3. Introduction to Basics of Wireless Communications
4. Fading Channels and Diversity
5. Bit-Error Rate Calculation for Wireless Communications
6. CDMA, OFDM and MIMO technologies in Wireless
7. Wireless Sensor Networks
8. Supermodular and Potential Games and applications in CDMA wireless communications

Applications (I)

1. Market Equilibrium and Pricing
2. Auctions (I) for Wireless Spectrum
3. Wireless Networks: Introduction to Basics of Wireless,
4. Resource Allocations in Wireless
5. Admission Control, Routing in Sensor and Ad-Hoc Networks,
6. Modeling Network Traffic and Strategic Network Formation.
7. Electoral Competitions and applications in Wireless Sensor Networks

Games with Imperfect Information

1. Bayesian Games, Extensive Games with Imperfect Information

Application (II)

1. Auctions (II): Radio Spectrum, With Arbitrary Distribution of Valuations
2. Signaling Games

Nash Bargaining with Applications

1. Rubinstein Bargaining Model with Alternating Offers
2. Nash Bargaining Solution
3. Relation of Axiomatic and Strategic Model
4. Bargaining in Wireless Network.

Auctions [III]and Mechanism Design with Applications

1. Revenue Equivalence

2. Mechanism and Optimal Mechanisms for Wireless
3. Efficient Mechanism: Vickrey-Clarke-Groves Auction for Wireless
4. Application of VCG in Resource Allocation for Wireless
5. Dynamic Spectrum Auction in Cognitive Radio Networks
6. Mechanisms in Networking and Wireless
7. Applications and Case Studies in Wireless