

# **CS344M**

# **Autonomous Multiagent Systems**

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# Good Afternoon, Colleagues

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Are there any questions?

# Logistics

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- Progress reports due in 1 week

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- DigCS

# Mixed strategy equilibrium

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		Player 2	
		Action 1	Action 2
Player 1	Action 1	3,7	2,2
	Action 2	6,5	1,7

# Mixed strategy equilibrium

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- What if player 2 picks action 1  $\frac{3}{4}$  of the time?
- What if player 2 picks action 1  $\frac{1}{4}$  of the time?
- Player 1 must be indifferent between actions 1 and 2
- Player 2 must be indifferent between actions 1 and 2

Do actual numbers matter?

# Correlated Equilibria

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Sometimes mixing isn't enough: Bach/Stravinsky

		Wife	
		S	B
Me	S	2, 1	0, 0
	B	0, 0	1, 2

Want only S,S or B,B - 50% each



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- Something happens so that we must meet on that day
- We have no way of getting in touch.
- When and where?
- What are the Nash equilibria?

# Incomplete Information Games

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- We each get one of 3 cards: 1,2,3
- If we both fold, we both lose nothing
- If one raises and one folds, the raiser gets 1
- If both raise, the one with the higher card gets 5
- Zero sum

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		Card ?	
		R	F
Card 3	R	5, -5	1, -1
	F	-1, 1	0, 0

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# Bayes-Nash Equilibrium

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With more numbers and/or different payoffs, bluffing can be a part of the Nash Equilibrium

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- What if one player isn't rational?
- What can't game theory simulate?

# Repeated games

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- Book slides

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- Tournaments on resources page

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- Doran's ICML slides