

CS344M

Autonomous Multiagent Systems

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Good Afternoon, Colleagues

Are there any questions?

Logistics

- Project proposal questions?

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 - Hand in 2 hard copies, mark 2D/3D

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- FAI talk on Friday at 11, ACES 2.402
 - Ted Pederson — “The Effect of Different Context Representations on Word Sense Discrimination in Biomedical Texts”

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Model the ant, not the colony

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Agents tied to environment

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Note: supports hierarchical agents

Examples from Nature

- Ants: path planning
- Ants: brood sorting
- Termites: nest building
- Wasps: task differentiation
- Birds and Fish: flocking
- Wolves: surrounding prey

Principles

- Try to avoid functional decomposition
- Simple agents (small, forgetful, local)
- Decentralized control
- System performance from interactions of many
- Diversity important: randomness, repulsion
- Embrace risk (expendability) and redundancy
- Agents should be able to share information
- Mix planning with execution
- Provide an “entropy leak”

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 - Other metrics
- Experiments
 - Now multiple robots make a difference

Real Robot Applications

Trail-Laying Robots :

- An application to **real robots**
- Trails marked with a pen
- Also use simulations (video)

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Task Allocation :

- Also on real robots
- How many is too many?

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