

# LECTURE 1: INTRODUCTION

An Introduction to Multiagent Systems

CIS 7412, Fall 2011

Lecture 1

An Introduction to Multiagent Systems

## Five Trends

- Five ongoing trends have marked the history of computing:
  - *ubiquity*;
  - *interconnection*;
  - *intelligence*;
  - *delegation*; and
  - *human-orientation*.

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## Ubiquity

- Continual reduction in cost of computing makes it possible to introduce processing power into places and devices that would have once been uneconomic.
- As processing capability spreads, sophistication (and intelligence of a sort) becomes *ubiquitous*.
- What could benefit from having a processor embedded in it?

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## Interconnection

- Computer systems no longer stand alone, but are networked into large distributed systems.
- Internet an obvious example, but networking is spreading its ever-growing tentacles.
- Since distributed and concurrent systems have become the norm, some researchers are putting forward theoretical models that portray computing as primarily a process of interaction

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## Intelligence

- The complexity of tasks that we are capable of automating and delegating to computers has grown steadily
- Many of these tasks are ones that can be thought of as requiring a good deal of intelligence.
- If you don't feel comfortable with this definition of "intelligence", it's probably because you are a human. . .
- Imagine whether you would be comfortable with your pet dog or cat doing these tasks.

## Delegation

- Computers are doing more for us . . . without our intervention
- We are giving control to computers, even in safety critical tasks
- One example: fly-by-wire aircraft, where the machine's judgment may be trusted more than an experienced pilot.
- Next on the agenda: fly-by-wire cars, intelligent braking systems, cruise control that maintains distance from car in front. . .