

## Learning Agents

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## The Basic Properties of Agents

Acting on behalf of its user

- Autonomous, communicative and collaborative

*The ability to communicate w/ users and other agents*

Task-oriented

- Competent & proactive

*The ability to plan and act*

Adapting to its environment and user

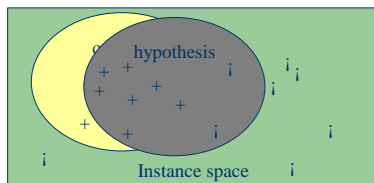
- Reactive, evolutionary and personalized

*The ability to learn and modify behavior*

## Concept Learning

Competence

Performance



## Concept Representation

Set of instances

- Vector
- Attribute-value pairs
- Pictures
- First-order logic

Rules

Decision trees

Logical models

Probabilistic models

- Bayesian networks
- Neural networks etc.

## Learning Personal Assistants

Personal email agent

- Document classification
- Case-based learning
- Naive Bayes learning

Learning calendar agents

- Calendar APprentice (Mitchell, et al. 1994)
- Personal calendar agent (SJ Lin & YJ Hsu, 2000)
- Decision-tree learning

## Calendar APprentice

T. Mitchell at CMU, 1993

- Mixed up *scheduling criteria* and *scheduling procedure*
- preference scheduled time

Problem:

- scheduled time cannot be determined by a single user
- scheduled time per se is a compromise, not the preference