Artificial Intelligence

Week 3

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PEAS

- Use PEAS to describe task
 - Performance measure
 - Environment
 - Actuators
 - •Sensors

PEAS

- Use PEAS to describe task environment
 - Performance measure
 - Environment
 - Actuators
 - Sensors
- Example: Taxi driver
 - Performance measure: safe, fast, comfortable (maximize profits)
 - Environment: roads, other traffic, pedestrians, customers
 - Actuators: steering, accelerator, brake, signal, horn
 - Sensors: cameras, sonar, speedometer, GPS, odometer, accelerometer, engine sensors

Environment Properties

- Fully observable vs. partially observable
- Deterministic vs. stochastic / strategic
- Episodic vs. sequential
- Static vs. dynamic
- Discrete vs. continuous
- Single agent vs. multiagent



Environment	Obser vable	Determi nistic	Episodic	Static	Discrete	Agents
Chess with a clock						
Chess without a clock						



Environment	Obser vable	Determi nistic	Episodic	Static	Discrete	Agents
Chess with a clock	Fully	Strategic	Sequential	Semi	Discrete	Multi
Chess without a clock	Fully	Strategic	Sequential	Static	Discrete	Multi

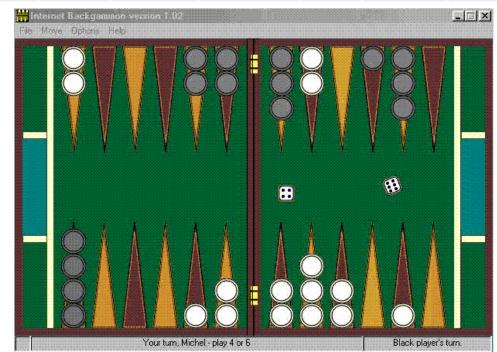


Environment	Obser vable	Determi nistic	Episodic	Static	Discrete	Agents
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Poker						



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Chess without a clock	Fully	Strategic	Sequential	Static	Discrete	Multi
Poker	Partial	Strategic	Sequential	Static	Discrete	Multi

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Backgammon						

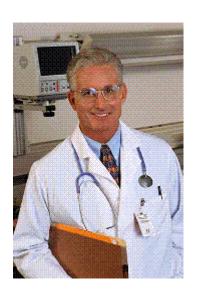


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Black player's turn.



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Medical diagnosis						



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Medical diagnosis	Partial	Stochast ic	Episodic	Static	Continu ous	Single



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	Medical diagnosis	Partial	Stochast ic	Episodic	Static	Continu ous	Single
	Image analysis						



Environment Obser **Determi Episodic Static Discrete** Agents vable nistic Chess with a clock Semi Fully Strategic Sequential Discrete Multi Chess without a clock Fully Strategic Sequential Static Discrete Multi Poker **Partial** Strategic Sequential Static Discrete Multi Backgammon Fully Stochast Sequential Static Discrete Multi ic Taxi driving **Partial** Stochast Sequential Continu Multi Dyna mic ic ous Medical diagnosis **Partial** Stochast **Episodic** Static Continu Single ic ous Image analysis Fully Determi **Episodic** Semi Discrete Single nistic

Fully observable vs. partially observable

Deterministic vs. stochastic / strategic

Episodic vs. sequential

Static vs. dynamic

Discrete vs. continuous



partially observable

Deterministic vs.

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Medical diagnosis	Partial	Stochast ic	Episodic	Static	Continu ous	Single
Image analysis	Fully	Determi nistic	Episodic	Semi	Discrete	Single
Robot part picking						



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multiagent

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Image analysis	Fully	Determi nistic	Episodic	Semi	Discrete	Single
Robot part picking	Fully	Determi nistic	Episodic	Semi	Discrete	Single



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