Prüfungsfragen Multiagentensysteme

MEM

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Korrektheit und Vollständigkeit der Informationen wird nicht gewährleistet.

1 Introduction

1.1 Limitations of the traditional AI approach that motivated research on agents?

1.2 What is an agent or is it simply a programm?

- Ein Agent ist ein Computersystem/eine Software, welche(s) unabhängig (autonom) agieren kann, um Nutzerwünsche zu erfüllen
- Ein Agent ist

  Situiert Eingebettet in einer Umgebung

  Autonom Fähigkeit zu selbstständigem Handeln

  Reaktiv Fähigkeit auf Umgebungsänderungen zu reagieren

  Proaktiv Fähigkeit zu zielgerichtetem Verhalten

  Intelligent Fähigkeit zu rationalem Handeln

  Sozial Fähigkeit zur Komminikation

1.3 What are the central areas of expertises and science that contributed to MAS, give examples

Multiagentensysteme sind eine Schnittmenge der Felder **Spieltheorie**, **Künstliche Intelligenz**, **Soziologie** und **Verteilte Systeme**.

1.4 What does time and ressource boundedness mean?

1.5 Difference between agents and objects?

Objects do it for free, agents do it for money.

Objekte
- sind passiv, sie haben keine Kontrolle über die Aktivierung von Methoden
- sind für ein allgemeines Ziel entworfen worden
- sind typischerweise in einen Thread integriert

Agenten
- handeln autonom
- haben verschiedene Ziele
- haben ihren eigenen Thread

1.6 Properties of agents?

Siehe 1.2.

2 Logic

2.1 How can we use logic to infer an action?

2.2 How does this relate to BDI agents?

2.3 What is modal logic, the kripke semantic?

2.4 What does positiv introspection or negative introspection mean?

2.5 Given the following example, what can an agent deduce about a situation based on modal logic?

2.6 Explain the relation between rational agents and logic specifications? So what to expect!

3 Plans

3.1 Explain the subsumption architecture!

3.2 Extend the BDI architecture to balance committment and opportunity seeking!

3.3 What is a plan and how are those developed, present a simple algorithm and describe its characteristics!

3.4 Different types of committment, what can we be committed to?

4 Decision Theory

4.1 How does decision theory relate to MAS?

4.2 The difference between Nash Equilibrium and Pareto Optimum?

4.3 Given the current example, what is the Nash Equilibrium what the pareto Optimum?

4.4 How can we derive different strategies from Pay Off matrices?

4.5 Prisoners Dilemma why is it interesting?

5 Application Prisoner Dilemma

5.1 Motivation for using it in sensor networks, goals?

5.2 What makes sensor networks a good application area for MAS techniques?

6 Communication

6.1 Why need agents to communicate? What are the problems in open communities?

6.2 KQML and KIF what is their purpose,

6.3 How does ACL looks like (and how are both KGML and KIF reflected in those)?

6.4 What is an ontology and why do we need them?

6.5 What does illocutionary aspect of communication refer to and how has this been reflected in ACL?

7 Contract Net

7.1 Different phases in the contract net?

7.2 What is the purpose of contract nets?

7.3 In which situation is it used?

8 Negotiation Auction

8.1 Why do agents need to negotiate?

8.2 The desirable properties of the rules of encounters, give example what are the implications of the different auctions?

8.3 What is an task-oriented domain and how can we find a good strategy?

8.4 What do we need to consider in negotiations, e.g. referring to lying.

8.5 Zeuthen strategy explain?

9 Trust and reputation

9.1 Why is this important?

9.2 What is essential for gaining trust?

9.3 What is the difference between subjective and global reputation?

9.4 Evaluating reputations is complex as it is part of the social network. E.g. how do we take the relations between agents into account to determine the value of their opinion?

10 Blackboard

10.1 How can we use a blackboard for communication?

10.2 What are the problems in designing blackboards?

10.3 What are new concepts that have been derived from Blackboards?

10.4 Explain tuples spaces?

11 Organization

11.1 What role does organization play?

11.2 How does the overlay network lanes work, what is ist motivation?

11.3 In open communities with certain rules, what is an important feature?

11.4 Coordination principles from nature – via environment

12 Mobility

12.1 What are mobile agents, how do they work in comparison to other remote programming approaches?

12.2 Weak and strong migration?

12.3 What are features that every mobile agent system platform has to provide?

12.4 Problem of security how is this different?