

Multi-agent Systems and Agents Emotion

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ABSTRACT

We intend to introduce and emphasize the use of emotions in collective action and individual Agents for better performance on multi-agent system design is discussed. Agent emotion is an issue which has not been seriously investigated in the design of multi-agent systems. In this paper we discuss the advantages of using our emotion and stress Agents have to use it. Because our focus is on the emotional agents, influence on the agents related for cooperation together can be just like a human, the communication Agents is emotions based.

Keywords: Agent, multi-agent systems, Agent emotion, cooperation, communication Agents

1. INTRODUCTION

Discussion of multi-agent systems for many years one of the main issues in the design of software systems and software engineering are discussed. We view the design of multi-agent systems can be multi-level, intelligent and non-intelligent level. We are not exactly like a vision of intelligent object-oriented class definition, then the definition of an object class to use, Can be discussed in the methodology of designing software systems design methodologies, such as object-oriented methodologies and multi-agent systems could also be used, we do not need to intelligence in the way the agents system.

The next level for the design of intelligent systems with a view from the intelligence can be expressed, of micro and macro intelligence that we have this kind of intelligence are discussed in this paper. When Agent intelligent is we aim, we discuss collaborative intelligent agents, learning and emotions are agents. In the first chapter an overview of intelligent systems, we discuss the following agents, multi-agent systems and in the case we need to feel the emotion and intelligent agents in the multi-agent systems.

2. INTELLIGENT SYSTEMS

An intelligence system is a new way of solving complex problems and is a way of achieving a reliable solution [1]. "Intelligent systems" is a broad term, covering a range of computing techniques that have emerged from research into artificial intelligence. It includes symbolic approaches, in which knowledge is explicitly expressed in words symbols and numerical approaches such as neural networks, genetic algorithms, and fuzzy logic [2]. Noted, being intelligent is a type of behavior that the

individual is the collective intelligence of the debate that can express the meaning of micro and macro.

2.1 Micro level of an intelligent system

In this part we want to discuss about intelligence micro levels between agents in an intelligence society. Suppose we have an intelligence society. In our discussed society, this intelligence is obtain from the intelligence of each of the society members that each of them can act intelligently and doing their duty as a society member upon their perceptions from their environment and their micro goals. One tangible example in this discussion is searching food by ants in a discussion of ant's colony. At first each ant searches for food, if it smells its own kind, it would go through the one which smells more. Otherwise it would act randomly; its next action is putting its footprint for guiding other ants [8, 9].

In this discussion, the issue of low intelligence is an agent, if we assume that the collective intelligence of the intelligent, for this interpretation, all members of smart society, each member has its own intelligent and able to do their tasks autonomously. For example, in a collective intelligence such as Ants colony every agent (ant) is itself intelligent, So that an intelligent being followed by the smell of food and other Agent (ants) are on track to achieve food, At the micro level, we need an intelligent public sentiment for better communication in Agent community can help. Then we can study the behavior of every member of society, micro-level intelligent community say.

1.2 Macro level of an intelligent system

In an intelligent community is being targeted as the main goal is to achieve sub goals, a system to achieve its sub goals, the need to cooperate and communicate in micro-level Agents associated with the emotion that it could be better. Overall output of the system as an intelligent understandings, logic and emotion, each member can take the best action for a system to be intelligent. We can behavior an intelligent system based on the behavior of its members and the final output of the system show that the intelligent system is called a macro level.

3. AGENT

Every creature that could have perceptions from its own environment by its sensors and reacts to these perceptions and have influence on its environment is an agent. A human agent uses its eye, ear, nose and touch for its perceptions and use foot, hand and tong for

effecting on its environment as an agent. An agent like robot has vision sensor, infrared occasions and different sensors for receiving from environment and also has different engines for influencing on environment. A software agent can receive some bit strings as an input and series of functions for influencing on its own environment .in “figure1” you see a public agent [3].

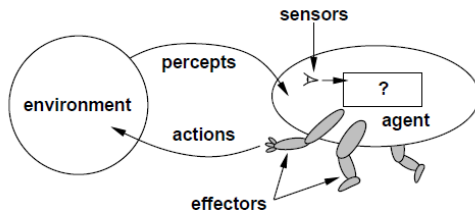


Figure1: Agents interact with environments through sensors and effectors.

A contemplative agent is an agent which do the right thing and surely it is the best thing. But what does this definition mean? We can say that it means doing the most successful action by an agent for obtaining the best result. Here we can see the problem of evaluating success of agent [3].

3.1 Agent autonomy

An agent's action can be the result of its experience or agents knowledge in its own environment that obtains them as an experience in different levels [7]. So we should consider that an agent some times obeys the whole system, in spite of its need for independence. An agent which has no experience and no perceptions from environment, may do all its primary actions randomly and the agent's life would be in danger. The needs of an agent for a primary knowledge can be reasonable that give to it by system in order to do its duty by using the primary knowledge and experiences in the rest of its life [3, 10].

4. MULTI AGENT SYSTEMS

These systems are consisting of several independent agents that communicate with each other's for a special goal; we call these systems, multi agent systems or (MAS). These are related to artificial intelligence or (AI) [4]. Traditional artificial intelligence just is in contact with one agent and it's really hard to deal with a big range of complex problems while these problems can be solved with completely by multi agent systems. [4] Multi agent systems are new and promising solution for software engineering for solving complex problems. This system consists of small actions of systems that consist of multi agent systems independently, that are working with each other's.

A multi-agent system (MAS) is a system composed of multiple interacting intelligent agents within an environment. Multi-agent systems can be used to solve problems that are difficult or impossible for an individual agent or a monolithic system to solve. Intelligence may include some methodic, functional, procedural or algorithmic search, find and processing approach. The agent paradigm in AI is based upon the notion of reactive, autonomous and internally motivated entities embedded in changing, uncertain worlds which they perceive and in which they act. Now agents technology are in service of commercial soft ware's with enormous scale of commercial and industrial in field of controlling

air traffic, resource management, controlling spacecraft, process simulation and process of trading and management of financial transactions and network management[6].

5. AGENT EMOTION

Following [5] we will incorporate four basic emotions: happiness, sadness, anger and fear. Interested here in how emotions affect the agent's practical reasoning. Briefly, happiness results when in the pursuit of a goal sub goals have been achieved as a sign that the adopted plan for the goal is going well. In this case nothing special has to be done: plans and goals simply should persist. On the other hand, sadness occurs when sub goals are not being achieved. In this case we have to deliberate t either drop its goal or try to achieve it by an alternative plan. Anger is the result of being frustrated from not being able to perform the current plan, and causes the agent to try harder so that the plan becomes achievable again. When an agent doesn't act properly in achieving a goal or doesn't be capable of doing that, it wills emotion hopelessness. We can consider anger with this definition too [5].We can understand with these definitions that feelings create with different parameters and follows special designs and goals towards existing scenario [5].

One reason may be that there are application domains where various kinds of constraints limit the application of deliberative methods. Another reason may be that we need to build and implement models of emotions to verify our theoretical analyses and predictions as part of our e orts to understand the wealth of animal and human emotions .General definition in the first place must be given to the decision, whether human or non-human agents such as the time the decision to perform a specific action, always decide what foods to eat, what to dress, How to talk to or a football team players decide how they attack, they defend or in a multi-agent system, how Agent decide how to reach a goal. So said the decision meant going to do a job from among several candidates to achieve a specific goal. Suppose a man has a number of candidates to choose a better company, a man for CEO in a company without feeling Management candidates should have a choice, the man could be a choice based on emotions such as fear, hate, love, and happily CEO choices, in this example we have two choices, a choice without feeling or sensation, in view of the failure to see that people get better results, can use their feelings in relation to their goals. Multi-agent systems because of human behavior, so you can follow along with emotions well placed to make decisions .in most multi-agent systems where the emotion are agent in relation to cooperation and to achieve a specific goal .of course considered that emotion follows fuzzy logic, and we cannot consider the presence or absence of a sense of absolute, but emotion is a factor of the environment and the impact of their actions in previous steps by other Agent, a behavior chart based on fuzzy logic is the following diagram "Figure 2".

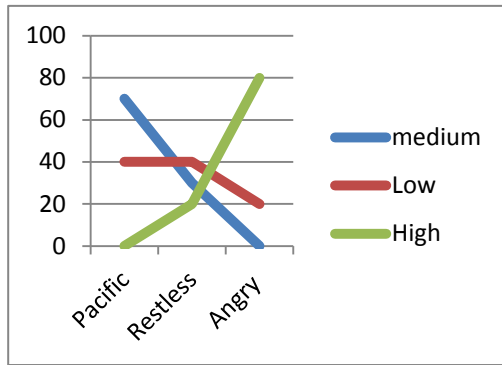


Figure 2: Tuesday emotion a phase diagram in Agent

6. BECAUSE OF THE EMOTIONAL AGENTS

As we have seen in the paper, emotion is a complex issue in agents this is because of the importance of emotion human behavior is modeled agent's behavior in the case collective or individual and we must analyze and decide on the behavioral aspects of individual and collective agents. One general Agent of action based on perceptions of the environment and other findings are, accordingly we guess the Agent behavior, it lowers the level of competition in the competitive environment. Can foreseeable to be lower when the emotion is a factor considering. Example, the following goals and sub goals of an agent Fuzzy logic can be used for taking the time, energy, etc. to achieve the goal Agent or fail to consider it joy or sadness.

7. CONCLUSION AND FUTURE WORKS

In this paper we only discuss the theory, such as multi-agent systems and the agents looked emotion and emotional stress on the Agents, We propose a multi-agent system researchers area Students who use their emotion in the workplace agents. But it should be noted that this does not make emotion that the agent is quite emotional. To do this we define a formula to use to express emotion, that emotional can be fully avoided by taking all Agent senses and logic.

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