Intelligent Agent Technology: User-Oriented Service Provisioning System based on a Multiagent Framework

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Research Topics

・Multimedia network middleware based on a multiagent framework
・Dynamic construction scheme of multimedia processing system
・Behavioral characteristics model for user-oriented multiagent systems

Research Seeds

●Multimedia communication system based on a multiagent framework

　In recent years, through the rapid development of the internet technologies, use of multimedia communication services on networks is increasing. Moreover, their uses are becoming personalized. Nevertheless, it is difficult for novice users of conventional multimedia network applications to receive stable services that are adaptable to changes in both user requirements and network/platform environments.

　In our laboratory, we propose a dynamic construction scheme of multimedia processing function from software components in multimedia network middleware. Especially, to overcome the difficulties described above, we propose flexible network middleware based on multiagent computing technology.

●Design and control models for multiagent systems

　In multiagent systems, overall system behaviors are extremely context-sensitive and non-deterministic because behaviors of the respective agents are decided dynamically using embedded knowledge of individual agents. Moreover, multiagent systems are distributed systems that compose the organization by the agent group that operates autonomously and behaves as an entire system through agent cooperation. Consequently, it is difficult to define the system functions and to eliminate undesirable actions in an initial design phase of the system. This great hurdle is construction of usable multiagent systems.

　We propose a method developed in our laboratory to observe and control behavioral characteristics of multiagent systems to support the design, development, and operation of multiagent systems. Especially, to overcome the difficulties described above, we propose a Flexible Distributed System and a Behavioral Characteristics Model for multiagent systems.

Related Technology

・Ubiquitous software services
・Multiagent self-organization
・Complex behavior characterization and engineering