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Special Interest Group on Agent-Based Information Systems

SIGABIS Track at: WeB Pre-ICIS Workshop on Electronic Business 2004, December 11-12, Washington, D.C.

sponsored by AIS Special Interest Group on E-Business, SIGEBIZ,
<http://citebm.business.uiuc.edu/ebiz>

Conference Topic: "Dynamic, Personalized and Service-Oriented E-Business" Track Theme: "Agent-Based IS and Computational Explanation"

Track Co-Chairs: C. S. Langdon, USC Marshall School of Business, and R. Sikora, University of Texas at Arlington

Session 1b, 9:45AM-11AM, Grand Hyatt Hotel, Room Arlington

"The Enhancement of Solving the Distributed Constraint Satisfaction Problem for Cooperative Supply Chains Using Multi-agent Systems," Fu-ren Lin, Hui-chun Kao

This paper proposes an agent-based distributed coordination mechanism that integrates negotiation using generic algorithms to reach quasi-optimal and executable order fulfillment schedules. The supply chain structure of a mold manufacturing industry serves as an example to evaluate the proposed mechanism. The performance is benchmarked against methods from the literature. Results indicate that the proposed distributed coordination mechanism is a feasible approach to solving order fulfillment scheduling conflicts in outsourcing situations.

"A Fuzzy Constraint-based Approach to Multilateral Negotiation in e-Business," K. Robert Lai, Menq-Wen Lin

This paper presents a general problem-solving framework for modeling multi-issue, multilateral negotiations using fuzzy constraints. Fuzzy constraints are used to naturally represent each agent's desires involving imprecision and human conceptualization, particularly when lexical imprecision and subjective matters are concerned. Our approach enables an agent to systematically relax fuzzy constraints. It also allows exploiting similarities in fuzziness in order to select alternatives that are more likely to be accepted by opponents, which helps both parties to advance towards a deal more quickly. An application to multilateral negotiation of a travel-planning problem is provided to demonstrate the usefulness and effectiveness of our framework.

"Location-Aware Intelligent Agent System for Publish/Subscribe Middleware in Mobile Environments," Amrish Vyas, Victoria Yoon

We propose adding a Location-Aware Intelligent Agent System (LIA) to publish/subscribe



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(Pub/Sub) middleware. We use intelligent agent technology to add "intelligence," mobility, and autonomy. The pub/sub paradigm is well-established for supporting many-to-many interactions of loosely-coupled entities. We discuss an application scenario.

"The Design Science of Agent-based Modeling and Simulation of Business Systems: Opportunities, Critical Issues," Chris S. Langdon

In the management sciences IS research has begun to advance knowledge in the use of agent-based systems as a means to seek different, computational explanations for business phenomena that have eluded scientific inquiry reliant on traditional, specifically, law and axiomatic explanation (Kimbrough 2003). While computer science related research has been focused on the artifact itself, research in the management sciences is explicitly focused on business issues. This perspective requires a modified research approach, which is discussed in the paper. (csl)

Original Call for Papers

Objective

Thank you for our great success with last year's Agent-based IS track at WeB 03. It was an important step to fulfill the SIGABIS mission of providing a forum for like-minded researchers, teachers, and practitioners in order to advance the science and benefits of agent-based IS. Last year's success convinced us to continue with a similar track at WeB 04.

It has become apparent that agent-based methods are crucial in dealing with the staggering variety and volume of interaction in distributed and heterogeneous environments. Agents and agent-related technologies are also becoming important because they let software components interoperate within modern, e-business applications like e-commerce and information retrieval. This has become especially relevant since most large-scale information systems applications of today assume that components will be added dynamically and that they will be autonomous (serve different users or providers and fulfill different goals) and heterogeneous (be built in different ways).

Topics

We welcome any research that demonstrates how a (business) problem can be solved using an agent-based, computational method, such as multi-agent and complex adaptive system modeling. SIGABIS is committed to promoting innovative research conducted according to generally accepted standards of rigorous scientific analysis. Contributions can be theoretical or experimental. We recommend that authors follow a typical format to present their work (research problem and question, approach, model, experimental design and instrument validation/model validation, results, conclusion). Computational modeling and simulation





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experiments in general and agent-based methods in particular are very innovative approaches to solving complex problems. It is therefore helpful to establish instrument reliability and validation.

Contributing papers may deal with any combination of the following issues and areas, but are not limited to it.

Issues

- Coordination, cooperation, and competition
- Learning
- Search
- Evolution, emergent behavior, and adaptation

Application Domains

- Supply chain and channel management
- Knowledge management
- Data mining
- E-commerce and e-business
- Mobile commerce
- Group decisions
- Business networks
- Communication languages



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