

Talk Title: Agent-based Transactions Management for Mobile Multidatabase

Speaker: Dr. Ali Hurson

Venue: 209, Comp. Sci. Bldg

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Time: April 9th Thursday, 12:30 to
1:30pm

Abstract:

The requirements to access and manipulate data across multiple heterogeneous existing databases and the proliferation of mobile technologies have propelled the development of mobile multidatabase system (MDBS). In that environment, transaction management is not a trivial task due to the technological constraints. This work proposes an Agent-based Transaction Management for Mobile Multidatabase (AT3M) system.

AT3M applies static and mobile agents to manage the transaction processing in mobile multidatabase system. It enables a fully distributed transaction management, accommodates mobility of the mobile clients, and allows global subtransactions to process in parallel. The proposed algorithm utilizes the hierarchical meta data structure of Summary Schema Model (SSM) which captures semantic information of data objects in the underlying local databases at different levels of abstractions. It is shown by simulation that AT3M suits well in mobile multidatabase environment and outperforms the existing V-Locking algorithm designed for the same environment in many aspects.

Bio

A. R. Hurson is currently a professor and Chair of Computer Science department at Missouri S&T. Before joining Missouri S&T, he was a professor of Computer Science and Engineering department at The Pennsylvania State University. His research for the past 27 years has been directed toward the design and analysis of general as well as special purpose computer architectures. His research has been supported by NSF, NCR Corp., DARPA, Air Force, IBM, Lockheed Martin, ONR, Penn State University, and Missouri S & T. He has published over 270 technical papers in areas including database systems, multidatabases, global information sharing processing, application of mobile agent technology, object oriented databases, Mobile computing environment, computer architecture and cache memory, parallel and distributed processing, dataflow architectures, and VLSI algorithms. Dr. Hurson served as the Guest Co-Editor of special issues of the *IEEE Proceedings on Supercomputing Technology*, the *Journal of Parallel and Distributed Computing on Load Balancing and Scheduling*, the *journal of integrated computer-aided engineering on multidatabase and interoperable systems*, *IEEE Transactions on Computers on Parallel Architectures and Compilation Techniques*, *Journal of Multimedia Tools and Applications*, and *Journal of Pervasive and Mobile Computing*. He is the co-author of the *IEEE Tutorials on Parallel Architectures for Database Systems, Multidatabase systems: An advanced solution for global information sharing, Parallel architectures for data/knowledge base systems, and Scheduling and Load Balancing in Parallel and Distributed Systems*. He is also the guest Editor of advances in computers for Parallel, Distributed, and Pervasive Computing. Hurson is the Co-founder of the *IEEE Symposium on Parallel and Distributed Processing (currently IPDPS)* and IEEE conference on Pervasive Computing and Communications.

Professor Hurson has been active in various IEEE/ACM Conferences and has given tutorials for various conferences on global information sharing, database management systems, supercomputer technology, data/knowledge-based systems, dataflow processing, scheduling and load balancing, parallel computing, and Pervasive computing. He served as a member of the IEEE Computer Society Press Editorial Board, an IEEE Distinguished speaker, editor of IEEE transactions on computers, editor of Journal of Pervasive and Mobile Computing, and IEEE/ACM Computer Sciences Accreditation Board. Currently, he is serving as an ACM lecturer, and The CSI Journal of Computer Science and Engineering.