

Bach D. Bui

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EDUCATION Ph.D., Computer Science, University of Illinois at Urbana Champaign, 2009 (expected).
M.S., Computer Science, Korea Information and Communications University, Feb 2005.
B.E., Electrical Engineering and Communications, Hanoi University of Technology, June 2002.

RESEARCH INTERESTS Real-time and Embedded Systems, Sensor Networks.

RESEARCH WORKS Cache Partitioning and Scheduling In Hard Real-time Critical Systems, *2007-current*:

- The objective is to eliminate the inter-partition cache interference problem in hard partitioning computer systems by combining cache partitioning and prefetch scheduling.

Real-time Wireless Communication, *2005-current*:

- RT-Chain: Real-time Mac protocol for multi-hop wireless networks. By exploiting the advantage of multiple frequencies and black-burst contention scheme, RT-Chain is able to prioritize real-time data flows and transmits them at the optimal bandwidth and predictable jitter.
- HRT: Real-time Routing protocol for multi-hop wireless networks.

Sensor Networks Localization, *2003-2004*:

- An adaptive localization protocol for wireless sensor networks where distance measurement is error prone.
- The protocol is capable of choosing better parameters for estimating distances which results in better location estimation.

Class project - Smart Home, *Spring 2006*:

- Implementation: A Smart Home platform composes of wired sensors, actuators, a computer, and a handheld devices (e.g. an iPod). A novel software architecture is also implemented that allows users to easily define actuator control procedure based on sensor data state machine.
- Example applications: a song is played either in the computer or the iPod depending on the relative distance between the user, the computer and the iPod.

PUBLICATIONS

PUBLICATIONS Bach D. Bui, Marco Caccamo, Lui Sha, Joseph Martinez Design and Evaluation of a Cache Partitioned Environment for Real-Time Embedded Systems, (to be submitted).

Bach D. Bui, Rodolfo Pellizzoni, Marco Caccamo, Chin F. Cheah, Andrew Tzakis, Soft Real-Time Chains for Multi-hop Wireless Ad-Hoc Networks, Proceedings of the IEEE Real-Time and Embedded Technology and Applications Symposium 2007.

Vartika Bhandari, Vivek Raghunathan, Bach Bui, Marco Caccamo, Impact of multiple transmission rates on real-time scheduling in wireless systems (extended abstract), ACM Mobicom 2007.

Bach Bui and Maifi Khan, HRR: A deterministic hard real-time routing protocol for sensor networks (UIUC-Technical Report-2006)

Bach D. Bui, D. Kim, A Localization Algorithm with Parametric Learning-based Distance, in the Proceedings of the 14th International Conference on Computer Communication and Networks 2005.

Bach D. Bui, D. Kim, J. Yang, Y. Doh, A Hybrid Approach for Wireless Sensor Network Localization, in the Proceedings of The 15th Joint Conference on Communications and Information 2005 (Best paper award).

Bach D. Bui, D. Kim, A Localization Algorithm Extension for The Evolvable Sensor Network, in the Proceedings of the International Conference on Parallel and Distributed Computing and Systems 2004.

PATENTS U.S. Patent: A Method For Wireless Ad-hoc Sensor Network Localization System Using Parameterized Distances.

AWARDS University of Illinois at Urbana Champaign

- VEF U.S. Graduate Study Fellowship, 2005-2010.
- Conference Travel Grant, Spring 2007.

Korea Information and Communication University

- Best International Student Award, 2005.
- Korean Government Information Technology Scholarship for Foreign Graduate Students, 2003-2005.

TECHNICAL SKILLS Extensive hardware and software experience in embedded system, Linux kernel. Operating Systems: Linux, Windows, TinyOS. Architecture: PowerPC, Atmel(AVR) family. Programming languages: C, C++, NesC.