



## Computer Engineering Group

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Field of study: Embedded Systems, Wireless Networks, Multi-core Programming

Key words: Multimedia, QoS, Data Broadcast

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#### 1. The Subject and Aims of Research

Our major research areas include SOPC-based Design for Embedded Systems, Wireless Sensor Networks, Mobile Ad hoc Networks, Multi-core Programming, Distributed Systems.

#### 2. Related Recent Research Topics

- Wireless Communications & Mobile computing
  - Wireless Networks
    - ▲ Ad Hoc Routing Protocols
    - ▲ Energy Efficiency in Wireless Networks
    - ▲ QoS Routing
    - ▲ Wireless Sensor Networks
  - Multimedia Wireless Networks
    - ▲ Bandwidth Reservation
    - ▲ Efficient Resource Management
    - ▲ QoS
  - Data Broadcast
- Parallel Processing & Distributed Systems
  - Cluster Computing
  - Peer-to-Peer Computing
  - Interconnection Networks
  - Multi-core Programming
- SOPC-based Design for Embedded Systems

#### 3. Selected Publications and Projects

Publications:

1. H.-L. Chen and N.-F. Tzeng, "On-Line Task Migration in Hypercubes through Double Disjoint Paths," *IEEE Transactions on Computers*, Vol. 46, No. 3, pp. 379-384, 1997. (EI, SCI)
2. H.-L. Chen and N.-F. Tzeng, "Subcube Determination in Faulty Hypercubes," *IEEE Transactions on Computers*, Vol. 46, No. 8, pp. 871-879, 1997. (EI, SCI)
3. H.-L. Chen and N.-F. Tzeng, "A Boolean Expression-Based Approach for Maximum Incomplete Subcube Identification in Faulty Hypercubes," *IEEE Transactions on Parallel and Distributed Systems*, Vol. 8, No. 11, pp. 1171-1183, 1997. (EI, SCI)
4. N.-F. Tzeng and H.-L. Chen, "Fast Compaction in Hypercubes," *IEEE Transactions on Parallel and Distributed Systems*, Vol. 9, No. 1, pp. 50-56, 1998. (EI, SCI)
5. H.-L. Chen and S.-H. Hu, "Submesh Determination in Faulty Tori and Meshes," *IEEE Transactions on Parallel and Distributed Systems*, Vol. 12, No. 3, pp. 272-282, 2001. (EI, SCI)
6. H.-L. Chen and S.-H. Hu, "Quick Buddy-Subcube Compaction in Hypercubes," *Journal of*

*Information Science and Engineering*, Vol. 19, No. 2, pp. 205-227, 2003. (EI, SCIE)

7. J.-Y. Chang and H.-L. Chen, "Dynamic-Grouping Bandwidth Reservation Scheme for Multimedia Wireless Networks," *IEEE Journal on Selected Areas in Communications*, vol. 21, no. 10, pp. 1566-1574, Dec. 2003. (EI, SCI)
8. J.-Y. Chang and H.-L. Chen, "A Traffic-Based Bandwidth Reservation Scheme for QoS Sensitive Mobile Multimedia Wireless Networks," *IEICE Transactions on Communications*, vol. E87-B, no. 5, pp. 1166-1176, May 2004. (EI, SCI)
9. J.-Y. Chang and H.-L. Chen, "Hybrid Dynamic-Grouping Bandwidth Reservation Scheme for Multimedia Wireless Networks," *IEICE Transactions on Communications*, vol. E87-B, no. 11, pp. 3264-3273, Nov. 2004. (EI, SCI)
10. S. Wang and H.-L. Chen, "An  $O(N \log K)$  Restricted Dynamic Programming Algorithm for Data Allocation over Multiple Channels," *IEICE Transactions on Communications*, vol. E88-B, no. 9, pp. 3756-3764, Sept. 2005. (EI, SCI)
11. S. Wang and H.-L. Chen, "Near-Optimal Data Allocation over Multiple Broadcast Channels," *Computer Communications*, vol. 29, no.9, pp. 1341-1349, May 2006. (EI, SCI)
12. J.-Y. Chang and H.-L. Chen, "A Borrowing-Based Call Admission Control Policy for Mobile Multimedia Wireless Networks," *IEICE Transactions on Communications*, vol. E89-B, no. 10, pp. 2722-2732, Oct. 2006. (EI, SCI)