Saowanee Saewong

Last modified:2/22/2005

Current Address:
4705 5th, Ave. Apt 1E
Pittsburgh PA, 15213
(412) 687-1292, 268-7113
ssaewong@andrew.cmu.edu

Permanent Address:
101/18 Moo.3 Rattanatibeth Rd.
Nonthaburi Thailand 11000
(662) 595-1061
ssaewong@gmail.com

OBJECTIVES   A Challenge position in the field of real-time and power-aware resource management in QoS guaranteed systems.

EDUCATION

Carnegie Mellon University, Pittsburgh, PA.
Ph.D. candidate in Electrical and Computer Engineering
Expected Graduation: June 2005
Thesis: Energy-Aware Resource Management in QoS-Guaranteed Systems
Specialty: Real-Time OS, Real-Time Scheduling and Power-Aware Computing
Carnegie Mellon University, Pittsburgh, PA.
Master of Science in Information Networking, May 1999
Thesis: Cooperative Scheduling of Multiple Resources for RT/Multimedia Systems
Specialty: Real-Time OS, Mobile and Wireless Networking
Kasetsart University, Bangkok, Thailand.
Bachelor of Electrical Engineering with First Class Honor, March 1994
Specialization in Telecommunication Systems

WORKING EXPERIENCE

Interphonic, Bangkok, Thailand

3/1994-12/1994   **Programmer**
- Developed Object-Oriented applications in 500-line Analog Private Automatic Branch Exchange

1/1995-12/1996   **System Design and Development Engineer**
- Designed and developed a Telecontrol system, a home telephone switching system capable of turning on and off appliance by telephone.
- Designed and implemented, as a part of a team, system architecture and software kernel of a 2000-line Digital Private Automatic Branch Exchange
- Designed and developed non-blocking multistage digital switching using Time-Space-Time (TST) structure for a 2000-line Digital PBX.

1/1997-7/1997   **System Analyst and Development Engineer**
- Analyzed, designed and implemented a smart PBX configuration system.
- Designed and implemented a simulation machine for quality control and system maintenance of PBX systems.

Carnegie Mellon University, Pittsburgh, PA

1/2000-5/2000
1/2001-5/2001
8/2004-12/2004   **Teaching Assistant**
- Modified and tested software on embedded boards with ARM/XScale processors
- Designed Mini-OS projects
- Head TA to conduct lab experiments for 50 students

PUBLICATIONS AND CONFERNECES

- **Practical Voltage-Scaling for Fixed-Priority RT-Systems,** Saowanee Saewong and Ragunathan Rajkumar, Proceedings of the ninth IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS), May 2003
- **Analysis of Hierarchical Fixed-Priority Scheduling,** Saowanee Saewong, Ragunathan Rajkumar, John P. Lehoczky, Mark H. Klein, Proceedings of the IEEE Euromicro Conference on Real-Time Systems, June 2002
- **Resource Sharing in Reservation-Based Systems,** Dionisio de Niz, Luca Abeni, Saowanee Saewong and Ragunathan Rajkumar, Proceedings of the IEEE Real-Time Systems Symposium, December 2001

- **Cooperative Scheduling of Multiple Resources,** Saowanee Saewong and Ragunathan Rajkumar, Proceedings of the IEEE Real-Time Systems Symposium, December 1999

SELECTED PROJECTS

Power-Aware Resource Management
- Built energy-aware Linux/RK in iPAQ, modified voltage-scaling enabling XScale BRH board, BitsyX, and the next-generation space computer microprocessor, PowerPC RAD750.
- Designed practical energy-aware scheduling policies in heterogeneous platforms to provide real-time guarantees and nearly-optimally reduce consumed energy with much less overhead.
- Designed generic multi-granularity reservation scheme, a new flexible reservation paradigm for multimedia applications which have high variability in resource requirements.
- Developed a generic energy-aware QoS manager which smartly balances task QoS levels with available system energy to maximize satisfaction/utility given by users, application developers and system administrators.

Linux/RK Resource-Kernel Real-Time Operating System
- Built generic multi-resource reservation model to enable cooperative real-time guarantees of multiple resources simultaneously.
- Designed and implemented a filesystem-independent real-time disk management in Linux.
- Built a resource synchronization protocol for real-time reservations.

Task Modeling for Embedded Systems
- Designed, analyzed and modeled applications in the real-time domain on VxWorks

Experience on Networked Systems
- Implemented a simulation for Simple Routing Information Protocol (SRIP) between a subnet of routers
- Developed a broker-based distributed computing infrastructure in JAVA
- Porting VIC/VAT videoconference tool on Darwin: Customizable Resource Management for Value-Added Network Services (in the area of Active Networks)

RELEVANT COURSES

Packet Switching	Economic and Management
Operating System	Information System Modeling
Distributed System	Oral Management Communication
Advanced Computer Networking	QoS in Networked Computer Systems
Wireless Communication	Mobile and Wireless Network
Real-time Multimedia System Modeling	Introduction to Mobile Robots

HONORS

First Class Honor in Electrical Engineering
Full scholarship for outstanding students awarded by Kasetsart University (91-94)
The Engineering Award for the most outstanding Electrical Engineering student. (93-94)

COMPUTER SKILLS

OS: UNIX (SunOS, Linux, FreeBSD), OS/2, Windows, NT, RT-Mach, VxWorks
Language: C, C++, Visual C++, JAVA, SQL, HTML, JavaScript, Assembly (x86, PowerPC, XScale/ARM), Pascal, Tcl/Tk
Software: MATLAB, SPICE, Internet tools, GnuPlot, LaTeX, TimeWiZ

ACTIVITIES

Member of Electrical Engineering lab, Kasetsart University.
Member of academic club of College of Engineering, Kasetsart University
Secretary/treasurer, Electrical Engineering Student Organization