The evolution of computer science and engineering is always motivated by the requirements for better performance, power efficiency, security, user interface (UI), etc. The first two factors are potential tradeoffs: better performance usually requires better hardware, e.g., the CPUs with larger number of transistors, the disks with higher rotation speed; however, the increasing number of transistors on the single die or chip reveals super-linear growth in CPU power consumption, and the change in disk rotation speed has a quadratic effect on disk power consumption. We propose three new systematic approaches, Transactional RAID, data affinity-aware data placement DAFA and Modeless power management, to tackle the performance problem in Database systems, large scale clusters/cloud platforms, and the power management problem in Chip Multi Processors, respectively.

Major: Computer Engineering

Educational Career:
Bachelor's of Computer Science, BS, 2005, Jilin University
Master's of Computer Science, MS, 2007, Huazhong University of Sci.&Tech.

Committee in Charge:
Dr. Jun Wang, Chair, Electrical Engineering & Computer Science
Dr. Kien. A. Hua, Electrical Engineering & Computer Science
Dr. Shaojie Zhang, Electrical Engineering & Computer Science
Dr. Shengli Zou, Computational Chemistry and Nano materials

Approved for distribution by Dr. Jun Wang, Committee Chair, on March 10, 2011.

The public is welcome to attend.