Speaker:  Dr. Tong Chen, *IBM's T. J. Watson Research Center*

Topic:  Optimization in Modern Compilers

**Abstract**

Besides the routine source code translation, modern compilers spend a lot of effort on code optimization. Optimization becomes the major role in compiler design because of the changes in hardware, programming paradigms and languages, and different criteria required for applications such as speed, space, power consumption, and security. The talk will address the following optimization issues: basis for optimization; semantic analysis of programs: control and data dependence, synchronization analysis; transformations; common scalar optimization including cse, dead code elimination, and in-lining; loop optimization including unrolling, tiling, fusion, distribution, transformation with speculation. The talk will also introduce profiling-based optimization and dynamic optimization.

**Biography**

Mr. Tong Chen received his B.S. and M.S. degrees from Fudan University, China. He joined the advanced compilation technology group at IBM's T. J. Watson Research Center in 2004. He started his study for Ph.D. in the Department of Computer Science at University of Minnesota in 1996 and has just completed all the requirements for his Ph.D. degree. Mr. Chen has been working on automatic parallelization, speculative multi-threading, memory reference profiling and speculative optimizations. He is currently working on a compiler targeting multi-core processors.

All are welcome. For further information, please contact Dr. Erh-Wen Hu (ext. 2196), hue@wpunj.edu or Dr. Cyril S. Ku (ext. 3719), kuc@wpunj.edu and Dr. Bogong Su (ext. 2979) sub@wpunj.edu.