Abstract: Software quality is a priority concern in software engineering. Software testing is one of the most widely used approaches to ensuring software quality in practice. In this talk, we will discuss a software testing technique called combinatorial testing. The key insight behind combinatorial testing is the following: While the behavior of a system as a whole could be affected by many factors, faults are often triggered by interactions involving only a few factors. Combinatorial testing is designed to cover all interactions between different factors up to a given level, and has been shown very effective for fault detection. We will discuss the theory on which combinatorial testing is founded on, the major techniques for building combinatorial test sets, and applications of combinatorial testing in different domains including web application, security, and concurrency testing. We will conclude this talk with several directions for future work.

About the speaker: Jeff (Yu) Lei is currently an associate professor of computer science at the University of Texas at Arlington. He obtained his PhD degree in Computer Science from North Carolina State Univ. in 2002. He was a Member of Technical Staff in Fujitsu Network Communications, Inc. from 1998 to 2001. His current research is in the area of automated software analysis and testing, with a special focus given to combinatorial testing, security testing, and concurrency testing. His research on combinatorial testing has been supported by the US National Institute of Standards and Technology (NIST).

Everyone is invited!