Discrete Mathematics Seminar

Time: Friday, 3 December 2010, 12:30-1:30 PM
Room: 238 Derrick Hall
Title: Coverings of finite sets by random covers, with applications to the HELP protocol
Speaker: Dr. Robert Ogden, Department of Computer Science (retired)

Abstract:

If we choose subsets of a finite set s at random, according to some specified distribution, how many subsets have to be chosen until s is probably covered? We solve this problem for distributions invariant under permutations of s by a Markov chain model and derive a useful estimate for a sufficient number of subsets to form a cover with a specified probability.

These results are applied to the HELP network protocol to estimate the number of times the server must send a set of file fragments to clients, not all of them helpful, in order to ensure that all the fragments be shared.