Combinatorics and Distributed Computing

A Marlboro Plan of Concentration

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Mathematics & Computer Science

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Abstract

This Plan of Concentration is composed of research in combinatorics, a survey of methods in distributed computing, and general tests covering mathematics and computer science. The combinatorics research paper investigates multisets of edge labels that form Hamiltonian paths through graphs labeled with elements of the dihedral group. This research expands on a question proposed by Buratti, Horak, and Rosa about cyclic groups. The distributed computing survey exemplifies common theoretical models for distributed algorithms through code examples, accompanied by a descriptive paper. Finally, a test in mathematics and a test in computer science demonstrate mastery of more general knowledge acquired over four years of study.

Components

Component	%
Hamiltonian paths through the complete graph of the dihedral group *Research paper in graph theory and combinatorics.*	50
Three flavors of Paxos *Three implementations of the Paxos algorithm demonstrated in C, with accompanying paper.*	30
Exam in Mathematics	10
Exam in Computer Science	10