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Education

BMgtE (1960) Rensselaer Polytechnic Institute
Major in industrial engineering, minor in electrical engineering
MIE (1962) Syracuse University
Emphasis in operations research
PhD (1966) University of California (Berkeley)
Major in operations research, minors in statistics and economics

Professional Work Experience and Outline of Research Contributions

AT&T Labs, Network Design and Performance Analysis Department (1997-2003): Work included modeling of Internet and data traffic in order to develop practical models to predict network performance, design of overload control algorithms for packet networks, and performance analysis of some AT&T systems. Three patents came from this work. In addition, I wrote several research papers based on this work, and two expository papers.

Bellcore, Applied Probability Research Group (1984-1996): Research on various topics in stochastic operations research. Major areas of investigation were algorithms for solving the linear equations arising in Markov chain analysis (steady-state probabilities, moments of passage times and the fundamental matrix), methods to accelerate rare-event simulations, statistical models of telecommunications traffic generated by coded video, performance models of data communications systems (ethernet, switched multi-megabit data service, frame relay), and construction of "optimal" access charges. Application work included design of a network management system for an emergency national telephone system and capacity planning for broadband services.

University of Minnesota, Institute for Mathematics and its Applications (1992): In residence for one month to explore the intersection of numerical linear algebra and Markov chain analysis.

Bell Laboratories, Operations Research Department (1966-1983): Primary work was to do research and consulting in operations research, particularly queueing problems. Theoretical contributions included advances in diffusion approximations, the "T" policy for control of queues, conservation laws for queues, contributions to the analysis of non-stationary queues, models of computer systems, and inventory models with returned items. For several years I did economic modeling to help with an AT&T rate case, and this helped to start economic research at Bell Laboratories.

Yale University , Department of Administrative Sciences (1974-1979): Taught the graduate course in queueing theory in 1974, 1978 and 1979. I spent the academic year 1976-77 at Yale on a sabbatical leave from Bell Laboratories. Taught queueing theory, undergraduate and graduate stochastic processes, and computer models. Advised one PhD dissertation in operations research (Linda Green) and one BS thesis in applied mathematics.

Awards

Honorable mention, Lanchester Prize (1982): *Stochastic Models in Operations Research, vol I* .

Distinguished Member of Technical Staff award (1985): Awarded by Bellcore for contributions to operations research.

Outstanding Paper Award (1995): “Fundamental bounds and approximations for ATM multiplexers with applications to design and admission control for video conferencing traffic” received an outstanding paper award at the ACM SIGCOM/PERFORMANCE ’95 conference.

ORSA/TIMS/INFORMS Service
Council member of ORSA and member of the ORSA/TIMS joint council, 1984-1987.

Chairman, ORSA Technical Section on Applied Probability, 1978.

Chairman, ORSA Technical Section on Telecommunications, 1994.

Area Editor for stochastic models, OR Journal, 1978-1985

Associate Editor, OR Journal (1974-78, 1997-2002), Management Science (1976-86),ORSA J. Computing (1988-2002).

ORSA Lanchester Prize Committee 1978 and 1981 (chairman).

ORSA/TIMS von Neumann Theory Prize Committee, 1991-94.

INFORMS Expository Writing Prize Committee, 1995-98.