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Objective

Challenging position in networking/internet area, requiring quantitative, analytical and programming skills.

Education

STANFORD UNIVERSITY, CA

PhD	Computer Science,	(3/93- 6/95)
M.S.	Computer Science,(GPA 4.2/4.0)	(9/91- 3/93)

INDIAN INSTITUTE OF TECHNOLOGY, Bombay

B.Tech.	Computer Science and Engineering	(7/85- 4/89)

Dissertation

Efficient Continuous Algorithms for Large-Scale Combinatorial Optimization

Relevant Expertise

- modelling, simulation and analysis of networking systems
- design, analysis and implementation of sophisticated algorithms
- experience in developing large software programs and databases
- strong background in optimization techniques and mathematical programming
- developing statistical models and software for automated trading and accounting

Professional Experience

Member of Technical Staff, D.E. Shaw & Co., New York, NY 8/95 - present

- Developed and implemented a statistical model for trading equities based on company fundamentals. These strategies are currently being used in UK and USA and I am currently developing one for trading emerging Asian markets.
- Built a large SYBASE database (8GB) of fundamental data on companies throughout the world. Set up the software for regular update and periodic synchronising checks.
- Developed a micro-optimizer that did tick-by-tick mean-variance portfolio optimization.

Research Assistant, Stanford University, Stanford, CA 6/92 - 6/95

- Research in *Design and Implementation of Algorithms for Resource Mgmnt. in Networks.*

Research Consultant, AT&T Bell Laboratories - Murray Hill, NJ 9/91 - 4/95

- Developed, implemented and evaluated *Efficient routing and congestion control techniques for high speed networks.* Our routing technique is being patented by AT &T (US patent application #08565737 filed 11/30/95) for use in their future ATM Networks.
- Designed and built a library of *C++ tools for Optimization Algorithms.*
- Designed and implemented linear programming methods for *Multi-commodity Network Flow* and for *Resource Allocation* that are currently being used within AT&T.
- Researched and developed optimization algorithms for solving hard combinatorial problems arising in engineering design like placement, circuit synthesis and machine learning.

Member of Technical Staff, AT&T Bell Labs - Murray Hill, NJ 8/89 - 9/91

- Conducted research in design and implementation of *Mathematical Programming techniques for Combinatorial Optimization* in the Mathematical Sciences Research Center.

Software intern, Datamatics Consultancy Services, Bombay 5/88 - 7/88

- Built a *multi-tasking environment* on an IBM-compatible PC.

Software intern, Industrial Development Bank Of India, Bombay 5/87 - 7/87

- Designed and implemented parts of a *Database Management System* in UNIX environment for handling financial processing requirements of the bank.

Software Skills

- **Languages:** C++, C, FORTRAN, SQL, Pascal, Java, HTML, Lisp, Prolog
- **Operating Systems:** Unix, DOS, Windows NT, Mac OS
- **Unix Tools:** tcsh, awk, yacc, lex, perl, rcs, dbx, TCP/IP, etc.
- **Software Packages:** Sybase, SPlus, MS Excel, CPLEX, SAS, MS Word

Teaching Experience

Teaching Assistant, Stanford University, Stanford, CA 1/94 - 3/94
- Organized review sessions and assisted in grading *Object-Oriented Programming in C++.*

Teaching Assistant, Stanford University, Stanford, CA 9/92 - 12/92
- Assisted in teaching and grading the course *Concurrent Programming.*

Course Assistant, Indian Institute of Technology, Bombay 7/88 - 11/88
- Coached and tutored a freshman class on *Computer Programming and Utilization.*

Related Experience

Treasurer, Rains Houses, Stanford, CA 10/93 - 6/94
- Administered expense accounts for a graduate residence that houses thousand students.

Manager, Sri Krishna Restaurant, Bombay 4/89 - 8/89
- Managed our family restaurant business that employs about 25 employees.

Awards

Stanford University Fellowship (Stanford University, 1991-92)
US Army Grant and NSF: Research Assistantship (Stanford University, 1992-95)
Academic Proficiency Award (IIT-Bombay, 1985-89)
National Merit Scholarship (Government of India, 1983 and 1985)
National Talent Scholarship (Government of India, 1984)

Select Publications

A. Kamath, O. Palmon, S. Plotkin, "Routing and Admission Control in General Topology Networks with Poisson Arrivals," *SIAM Symposium on Discrete Algorithms*, 1996.

R. Gawlick, A. Kamath, S. Plotkin, K.G. Ramakrishnan, "Routing and Admission Control of Virtual Circuits in General Topology Networks," Technical Memorandum, AT&T Bell Labs, 1995.

A. Kamath, O. Palmon, "Improved Interior Point Algorithms for Exact and Approximate solution of Multicommodity Flow Problems," *SIAM Symposium on Discrete Algorithms*, 1995.

A. Kamath, O. Palmon, S. Plotkin, "Fast Approximation Algorithm for Minimum Cost Multi-commodity Flow," *SIAM Symposium on Discrete Algorithms*, 1995.

A. Kamath, R. Motwani, K. Palem, P. Spirakis, "Tail Bounds for Occupancy and the Satisfiability Threshold Conjecture," *IEEE Conference on Foundations of Computer Science*,1994.

A. Kamath, N. Karmarkar, K.G. Ramakrishnan, M.G.C. Resende, "An Interior Point approach to Boolean Vector Function Synthesis," *IEEE Conference on Circuits and Systems*, 1993.

A. Kamath, N. Karmarkar, K.G. Ramakrishnan, "Computational and Complexity results for an Interior Point Algorithm on Multi-Commodity Flow Problems," *Networks*, 1993.

K.G. Ramakrishnan, N. Karmarkar, A. Kamath, "An Approximate Dual Projective Algorithm for Solving Assignment Problems," *DIMACS Series in Discrete Math and Comp. Sci.*, American Mathematical Society, 1993.

A. Kamath, N. Karmarkar, "An $O(nL)$ Iteration Algorithm for Computing Bounds in Quadratic Optimization Problems," *Complexity in Numerical Optimization*, World Scientific, 1993.

A. Kamath, N. Karmarkar, K.G. Ramakrishnan, M.G.C. Resende, "A Continuous Approach to the Inductive Inference Problem," *Mathematical Programming*, vol. 57, pp.215-238, 1992.

A. Kamath, N. Karmarkar, "Continuous Approach to Computing Bounds in Quadratic Optimization Problems with Integer variables," *Journal of Global Optimization*, 1992.

A. Kamath, N. Karmarkar, K.G. Ramakrishnan, M.G.C. Resende, "Computational experience with the Interior Point Algorithm for 0-1 Integer prog. on the Satisfiability problem," *Annals of Operations Research*, 1991.