FOCS '86

Monday, October 27, 1986

Morning Session chair: John Hopcroft

9:00 *An $O(n^2(m + n \log n) \log n)$ min-cost flow algorithm* Zvi Galil (Columbia University and Tel-Aviv University) and Eva Tardos (Eotvos L. University and MSRI).

9:20 *Probabilistic construction of deterministic algorithms: approximating packing integer programs* Prabhakar Raghavan (Berkeley).

9:40 *On a search problem related to branch-and-bound procedures* Richard Karp (Berkeley), Michael Saks (Bell Communications Research) and Avi Wigderson (MSRI and the Hebrew University).

10:00 *Probabilistic Boolean decision trees and the complexity of evaluating game trees* Michael Saks (Bell Communications Research) and Avi Wigderson (MSRI and Hebrew University).

10:20 Coffee

Morning Session chair: Moshe Vardi

10:40 *A physical interpretation of graph connectivity and its algorithmic applications* N. Linial (MSRI and Hebrew University), L. Lovasz (MSRI and Eotvos Lorand University) and A. Wigderson (Hebrew University and MSRI).

11:00 *The asymptotic spectrum of tensors and the exponent of matrix multiplication* Volker Strassen (Universitat Zurich).

11:20 *Storing a dynamic sparse table* Alfred Aho and David Lee (AT&T Bell Laboratories).

11:40 *Lower bounds for accessing binary search trees with rotations* Robert Wilber (IBM Almaden).

12:00 *What search algorithm gives optimal average-case performance when search resources are highly limited?* David Mutchler (Duke University).

12:20 Lunch

Afternoon Session chair: Alok Aggarwal

2:10 *Geometric applications of Davenport-Schinzel sequences* M. Sharir, R. Cole, K. Kedem, D. Leven, R. Pollack and S. Sifrony (Courant Institute and Tel Aviv University).

2:30 *Lower bounds on the complexity of multidimensional searching* Bernard Chazelle (Ecole Normale Superieure and Brown University).

2:50 *Planar realizations of nonlinear Davenport-Schinzel sequences by segments* Ady Wiernik (Tel-Aviv University).

3:10 *Proving by example and gap theorem* Hong Jia-Wei (University of Toronto).

3:30 Coffee

Afternoon Session chair: Ravi Kannan

3:50 *An optimal algorithm for the All-Nearest-Neighbors problem* Pravin Vaidya (University of Illinois, Urbana-Champaign).

4:10 *An algorithm for constructing the aspect graph* W. Harry Plantinga and Charles Dyer (University of Wisconsin).

4:30 *An algorithmic approach to the automated design of parts orienters* B.K. Natarajan (Cornell University).

4:50 *Finite-resolution computational geometry* Dan Greene and Frances Yao (Xerox Palo Alto).

5:10 *On Newton's method for polynomials* Joel Friedman (Berkeley).

Tuesday, October 28, 1986

Morning Session chair: Umesh Vazirani

9:00 *How to generate and exchange secrets* Andrew Yao (Stanford University).

9:20 *Information theoretic reductions among disclosure problems* Gilles Brassard, Claude Crepeau (Universite de Montreal) and Jean-Marc Robert (Ecole Polytechnique de Montreal).

9:40 *Proofs that yield nothing but their validity and a methodology of cryptographic protocol design* Oded Goldreich (MIT and Technion), Silvio Micali (MIT) and Avi Wigderson (MSRI and Hebrew University).

10:00 *Non-transitive transfer of confidence: a perfect zero-knowledge interactive protocol for SAT and beyond* Gilles Brassard and Claude Crepeau (Universite de Montreal).

10:20 Coffee

Morning Session chair: Nancy Lynch

10:40 *Dynamic deadlock resolution protocols* Baruch Awerbuch and Silvio Micali (MIT).

11:00 *Programming simultaneous actions using common knowledge* Yoram Moses and Mark Tuttle (MIT).

11:20 *Flipping persuasively in constant expected time* C. Dwork (IBM Almaden), D. Shmoys (MIT and MSRI) and L. Stockmeyer (IBM Almaden).

11:40 *Atomic shared register access by asynchronous hardware* Paul Vitanyi (MIT and Centrum voor Wiskunde en Informatica) and Baruch Awerbuch (MIT).

12:00 *Optimal online algorithms for caching and sharing distributed memory* Anna Karlin (Stanford University), Mark Manasse (DEC Palo Alto), Larry Rudolph (Hebrew University) and Daniel Sleator (Carnegie-Mellon).

12:20 Lunch

Afternoon Session chair: Charles Leiserson

2:10 *The distance bound for sorting on mesh-connected processor arrays is tight* YiMing Ma, Sandeep Sen and Isaac Scherson (Santa Barbara).

2:30 *Meshes with multiple buses* Quentin Stout (University of Michigan).

2:50 *Optimal simulations of tree machines* Sandeep Bhatt (Yale University), Fan Chung (Bell Communications Research), Tom Leighton (MIT) and Arnold Rosenberg (Duke University).

3:10 *How robust is the n-cube?* Bernd Becker and Hans-Ulrich Simon (Universitat des Saarlandes).

3:30 Coffee

Afternoon Session chair: Gary Miller

3:50 *A Las Vegas - NC algorithm for isomorphism of graphs with bounded multiplicity of eigenvalues* Laszlo Babai (University of Chicago and Eotvos University).

4:10 *Parallel algorithms for permutation groups and graph isomorphism* Eugene Luks (University of Oregon).

4:30 *Complexity of isomorphism testing* Max Garzon and Yechezkel Zalcstein (Memphis State University).

4:50 *FFD bin-packing for distributions on [0,1/2]* Sally Floyd and Richard Karp (Berkeley).

5:10 *Fast solution of some random NP-hard problems* M.E. Dyer (Teesside Polytechnic) and A.M. Frieze (Queen Mary College).

Wednesday, October 29, 1986

Morning Session chair: Michael Sipser

9:00 *BPP and the polynomial time hierarchy in communication complexity theory* Laszlo Babai (University of Chicago and Eotvos University), Peter Frankl (C.N.R.S) and Janos Simon (University of Chicago).

9:20 *A new pebble game that characterizes parallel complexity classes* Martin Tompa (IBM Yorktown Heights) and H. Venkateswaran (University of Washington, Seattle).

9:40 *K+1 heads are better than K for PDA's* Ming Li (Ohio State University) and Marek Chrobak (Warsaw University).

10:00 *On the power of interaction* William Aiello, Shafi Goldwasser and Johan Hastad (MIT).

10:20 Coffee

Morning Session chair: Joel Seiferas

11:00 *Collapsing Degrees* Stuart Kurtz (University of Chicago), Stephen Mahaney (AT&T Bell Laboratories) and James Royer (University of Chicago).

11:20 *Three results on the polynomial isomorphism of complete sets* Judy Goldsmith and Deborah Joseph (University of Wisconsin, Madison).

11:40 *Permanent and determinant* Joachim von zur Gathen (University of Toronto).

12:00 *Time-space tradeoffs for branching programs contrasted with those for straight-line programs* Karl Abrahamson (University of British Columbia).

12:20 *Meanders, Ramsey Theory and lower bounds for branching programs* Noga Alon (Tel Aviv University) and Wolfgang Maass (University of Illinois at Chicago).

12:40 Lunch

Afternoon Session chair: Mihalis Yannakakis

2:10 *The token distribution problem* David Peleg and Eli Upfal (IBM Almaden).

2:30 *Separator-based strategies for efficient message routing* Greg Frederickson and Ravi Janardan (Purdue University).

2:50 *Parallel complexity of logical query programs* Jeffrey Ullman and Allen Van Gelder (Stanford University).

3:10 *On the power of one-way communication* Jik Chang, Oscar Ibarra and Anastasios Vergis (University of Minnesota).

3:30 Coffee

Afternoon Session chair: Hal Sudborough

3:50 *An efficient parallel algorithm for planarity* Philip Klein (MIT) and John Reif (Harvard University).

4:10 *Approximate and exact parallel scheduling with applications to list, tree and graph problems* Richard Cole (Courant Institute) and Uzi Vishkin (Courant Institute and Tel Aviv University).

4:30 *An optimal randomized parallel algorithm for finding connected components in a graph* Hillel Gazit (University of Southern California).

4:50 *Tight complexity bounds for parallel comparison sorting* Noga Alon, Yossi Azar (Tel Aviv University) and Uzi Vishkin (Courant Institute and Tel Aviv University).

5:10 *Parallel merge sort* Richard Cole (Courant Institute).