LMS Symposium on Boolean Function Complexity

Lecture Programme

MONDAY 23rd JULY

W McColl	10.00	Introduction to Boolean function complexity
P Dunne	10.45	Relationship between monotone & non-monotone network complexity
A Razborov	11.45	Lower bound techniques in Boolean function complexity
R Smolensky	4.30	Introduction to algebraic techniques in Boolean function complexity
I Wegener	5.00	Symmetric funcions in AC^0 can be computed in constant depth with very small size

TUESDAY 24th JULY

A Wigderson	9.00	Communication complexity and the depth of Boolean circuits
M Furst	10.00	Observations about harmonic analysis of Boolean functions
D Barrington	11.30	Some problems concerning Razborov-Smolensky polynomials over rings
G Brightwell	4.30	Counting linear extensions is #P-complete
A Chin	5.30	Circuits for the counting functions
D Uhlig	6.00	Combinatorial networks simultaneously computing values of Boolean functions

WEDNESDAY 25th JULY

L Valiant	9.00	Algebraic models for Boolean complexity
M Sipser	9.45	On monotone complexity classes
N Pippenger	11.15	Improved circuits and formulae for multiple additions, multiplication and symmetric Boolean functions Part.I
	12.15	Open problems, research announcements

THURSDAY 26th JULY

U Zwick	9.00	Improved circuits and formulae for multiple additions, multiplication and symmetric Boolean functions Part II
A Yao	10.00	Computation with threshold circuits
R Smolensky	11.30	An algebraic approach to circuit complexity
N Nisan	4.30	Pseudo-randon generators for space-bounded computation
N Biggs	5.30	Learning graph properties?
	6.15	Open problems

FRIDAY 27th JULY

A Razborov	9.30	1) On submodular complexity measures
		2) Nondeterministic branching programs for majority require superlinear size
A Borodin	11.00	Time-space tradeoff for undirected graph s-t connectivity
J Shawe-Taylor	12.00	Symmetries and discriminability in feedforward network architectures
R Mirwald	4.30	Characterisation of the rank of a pair of Boolean matrices

SUNDAY 29th JULY

A Razborov	10.00	Informal proof presentation (to include nonlinear lower bound for nondeterministic branching programs)
W McColl	2.00	Planar circuits
I Newman	3.00	On read-once functions
M Klawe	5.00	A tight lower bound for the size of planar permutation networks

MONDAY 30th JULY

A Andreev	9.30	Partial Boolean functions and complexity
M Ajtai	11.00	Boolean dependence and random points
	12.00	Open problems
M Beynon	4.30	Monotone Boolean functions from a lattice-theoretic perspective
R Raz	5.30	$\Omega(\log^2 n)$ lower bound for the monotone depth of connectivity

TUESDAY 31st JULY

P Dunne	9.30	Superpolynomial lower bounds on monotone circuit size (proof of Razborov's results)
I Wegener	2.00	Multiplication by threshold circuits of depth 4
D Uhlig	2.40	(i) Boolean functions with a great number of subfunctions and small complexity and depth
		(ii) On modified Kravzov schemes

LMS Symposium on Boolean Function Complexity, Durham 1990

Selected papers:

Ajtai	Boolean complexity and probabilistic constructions
Andreev	Partial Boolean functions and complexity
Barrington	Some problems involving Razborov-Smolensky polynomials
Beynon	Monotone boolean functions from a lattice-theoretic perspective
Dunne	Relationships between monotone and non-monotone network complexity
Grigni and Sipser	Monotone space complexity
McColl	Planar circuits
Mirwald and Schnorr	Characterization of the rank of a pair of matrices over Z_2
Newman	On read-once functions
Paterson, Pippenger and Zwick	Optimal carry save networks
Raz and Wigderson	Communication complexity and the depth of Boolean circuits
Razborov	On submodular complexity measures
Uhlig	Combinatorial networks simultaneously computing values of monotone Boolean functions
Valiant	Algebraic models for Boolean complexity
Wegener, Wurm and Yi	Symmetric functions in AC^0 can be computed in constant depth with very small size