

CONFERENCE PROGRAM

TUESDAY, JULY 28, 1987

5:00 - 9:00 REGISTRATION: *Lobby, McCormick Hall*

7:00 - 9:00 WELCOMING RECEPTION: *Courtyard, McCormick Hall*

WEDNESDAY, JULY 29, 1987

8:00 REGISTRATION: *Room 10-280*

9:00 OPENING REMARKS: *Room 10-250*

9:20 - 10:40 GENETIC SEARCH THEORY

Finite Markov chain analysis of genetic algorithms

David E. Goldberg and Philip Segrest 1

An analysis of reproduction and crossover in a binary-coded genetic algorithm

Clayton L. Bridges and David E. Goldberg 9

Reducing bias and inefficiency in the selection algorithm

James E. Baker 14

Altruism in the bucket brigade

Thomas H. Westerdale 22

10:40 - 11:00 COFFEE BREAK

11:00 - 12:00 ADAPTIVE SEARCH OPERATORS I

Schema recombination in pattern recognition problems *Fy, A.M.*

Irene Stadnyk 27

An adaptive crossover distribution mechanism for genetic algorithms

J. David Schaffer and Amy Morishima 36

Genetic algorithms with sharing for multimodal function optimization

David E. Goldberg and Jon Richardson 41

12:00 - 2:00 LUNCH

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12:00 - 2:00 LUNCH

2:00 - 3:20 REPRESENTATION ISSUES

<i>The ARGOT strategy: adaptive representation genetic optimizer technique</i> Craig G. Shaefer	50
<i>Nonstationary function optimization using genetic algorithms with dominance and diploidy</i> David E. Goldberg and Robert E. Smith	59
<i>Genetic operators for high-level knowledge representations</i> H. J. Antonisse and K. S. Keller	69
<i>Tree structured rules in genetic algorithms</i> Arthur S. Bickel and Riva Wenig Bickel	77

3:20 - 3:40 COFFEE BREAK**3:40 - 5:00 KEYNOTE ADDRESS**

<i>Genetic algorithms and classifier systems: foundations and future directions</i> John H. Holland	82
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7:00 - 9:00 BUSINESS MEETING**THURSDAY, JULY 30, 1987****9:00 - 10:20 ADAPTIVE SEARCH OPERATORS II**

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<i>Incorporating heuristic information into genetic search</i> Jung Y. Suh and Dirk Van Gucht	100
<i>Using reproductive evaluation to improve genetic search and heuristic discovery</i> Darrell Whitley	108
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10:20 - 10:40 COFFEE BREAK

10:40 - 12:00 CONNECTIONISM AND PARALLELISM I

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<i>Parallel implementation of genetic algorithms in a classifier system</i> George G. Robertson	140
<i>Punctuated equilibria: a parallel genetic algorithm</i> J. P. Cohoon, S. U. Hegde, W. N. Martin and D. Richards	148

12:00 - 2:00 LUNCH**2:00 - 3:20 PARALLELISM II**

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<i>Genetic learning procedures in distributed environments</i> Adrian V. Sannier II and Erik D. Goodman	162
<i>Parallelisation of probabilistic sequential search algorithms</i> Prasanna Jog and Dirk Van Gucht	170
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3:20 - 3:40 COFFEE BREAK**3:40 - 5:00 CREDIT ASSIGNMENT AND LEARNING**

<i>Bucket brigade performance: I. Long sequences of classifiers</i> Rick L. Riolo	184
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<i>Multilevel credit assignment in a genetic learning system</i> John J. Grefenstette	202
<i>On using genetic algorithms to search program spaces</i> Kenneth A. De Jong	210

THURSDAY, JULY 30, 1987

6:30 - 10:00 CONFERENCE BANQUET: *New England Clambake*

FRIDAY, JULY 31, 1987

9:00 - 10:20 APPLICATIONS I

A genetic system for learning models of consumer choice

David Perry Greene and Stephen F. Smith 217

A study of permutation crossover operators on the traveling salesman problem

I. M. Oliver, D. J. Smith and J. R. C. Holland 224

A classifier based system for discovering scheduling heuristics

M. R. Hilliard, G. E. Liepins, Mark Palmer, Michael Morrow and Jon Richardson 231

Using the genetic algorithm to generate LISP source code to solve the prisoner's dilemma

Cory Fujiko and John Dickinson 236

10:20 - 10:40 COFFEE BREAK

10:40 - 12:00 APPLICATIONS II

Optimal determination of user-oriented clusters: an application for the reproductive plan

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The genetic algorithm and biological development

Stewart W. Wilson 247

Wed A.M.,

Genetic algorithms and communication link speed design: theoretical considerations

Lawrence Davis and Susan Coombs 252

Genetic algorithms and communication link speed design: constraints and operators

Susan Coombs and Lawrence Davis 257

12:00 - 2:00 LUNCH

2:00 - 3:20 PANEL DISCUSSION: GA's and AI

3:20 - 3:40 COFFEE BREAK

3:40 - 5:00 INFORMAL DISCUSSION AND FAREWELL

This gave
the tutorial

**GENETIC ALGORITHMS
AND THEIR APPLICATIONS:
Proceedings of the
Second International Conference on
Genetic Algorithms**

**July 28-31, 1987
at the
Massachusetts Institute of Technology
Cambridge, MA**

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John J. Grefenstette
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Editor



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