TABLE OF CONTENTS

Wednesday, July 24, 1985	
Session 1: 8:45 a.m - 10:15 a.m. Chair: John Holland	
Properties of the bucket brigade John H. Holland, University of Michigan	page 1
Genetic algorithms and rule learning in dynamic system control David E. Goldberg, University of Alabama	page 8
Knowledge growth in an artificial animal Stewart W. Wilson, Rowland Institute for Science	page 16
Coffee Break: 10:15 a.m 10:45 a.m.	
Session 2: 10:45 a.m 12:00 noon Chair: Lashon Booker	
Implementing semantic network structures using the classifier system Stephanie Forrest, University of Michigan	page 24
The bucket brigade is not genetic Thomas H. Westerdale, University of London	page 45
Genetic plans and the probabilistic learning system: synthesis and results Larry Rendell, University of Illinois at Urbana-Champaign	page 60
Lunch: 12:00 noon - 2:00 p.m.	
Session 3: 2:00 p.m 2:50 p.m. Chair: Stephen Smith	
Learning multiclass pattern discrimination J. David Schaffer, Vanderbilt University	page 74
Improving the performance of genetic algorithms in classifier systems Lashon B. Booker, Navy Center for Applied Research in AI	page 80

Coffee Break: 2:50 p.m. - 3:15 p.m.

Discussion: 3:15 p.m 4:30 p.m. Topic: GA's and Machine Learning Chair: John Holland	
Thursday, July 25, 1985	
Session 4: 9:00 a.m 10:15 a.m. Chair: John Grefenstette	
Multiple objective optimization with vector evaluated genetic algorithms J. David Schaffer, Vanderbilt University	page 93
Adaptive selection methods for genetic algorithms James E. Baker, Vanderbilt University	page 101
Genetic search with approximate function evaluations John J. Grefenstette and J. Michael Fitzpatrick, Vanderbilt University	page 112
Coffee Break: 10:15 a.m 10:45 a.m.	
Session 5: 10:45 a.m 12:00 noon Chair: John Grefenstette	
A connectionist algorithm for genetic search David H. Ackley, Carnegie-Mellon University	page 121
Job shop scheduling with genetic algorithms Lawrence Davis, Bolt, Beranek and Newman, Inc.	page 136
Compaction of symbolic layout using genetic algorithms Michael P. Fourman, Brunel University	page 141
Lunch: 12:00 noon - 2:00 p.m	
Session 6: 2:00 p.m 3:15 p.m. Chair: Ken De Jong	

page 154

page 160

Alleles, loci, and the traveling salesman problem

Vanderbilt University

 $Genetic\ algorithms\ for\ the\ traveling\ salesman\ problem$

David E. Goldberg and Robert Lingle, Jr., University of Alabama

John J. Grefenstette, Rajeev Gopal, Brian J. Rosmaita and Dirk Van Gucht,

Genetic algorithms: a 10 year perspective page 169 Kenneth De Jong, George Mason University Coffee Break: 3:15 p.m. - 3:45 p.m. Discussion: 3:45 p.m. - 4:30 p.m. Topic: GA's as Search Algorithms Chair: Kenneth De Jong Friday, July 26, 1985 Session 7: 9:00 - 10:30 a.m. Chair: John Grefenstette Classifier systems with long term memory page 178 Hayong Zhou, Vanderbilt University A representation for the adaptive generation of simple sequential programs page 183 Nichael Lynn Cramer, Texas Instruments, Inc. Adaptive "cortical" pattern recognition page 188 Stewart W. Wilson, Rowland Institute for Science Machine learning of visual recognition using genetic algorithms page 197 Arnold C. Englander, Itran Corp. Bin packing with adaptive search page 202 Derek Smith, Texas Instruments, Inc.

page 207

Coffee Break: 10:30 a.m. - 11:00 a.m.

Craig Schaefer, Rowland Institute for Science

Directed tress method for fitting a potential function

Discussion: 11:00 a.m. - 12:00 noon

Topic: Summary and Future Directions

Chair: John Holland

Tom terdole Westerdole

PROCEEDINGS OF AN INTERNATIONAL CONFERENCE ON GENETIC ALGORITHMS AND THEIR APPLICATIONS

July 24-26, 1985 at Carnegie-Mellon University Pittsburgh, PA

Sponsored By

Texas Instruments, Inc.

U.S. Navy Center for Applied Research in Artificial Intelligence (NCARAI)

John J. Grefenstette Editor