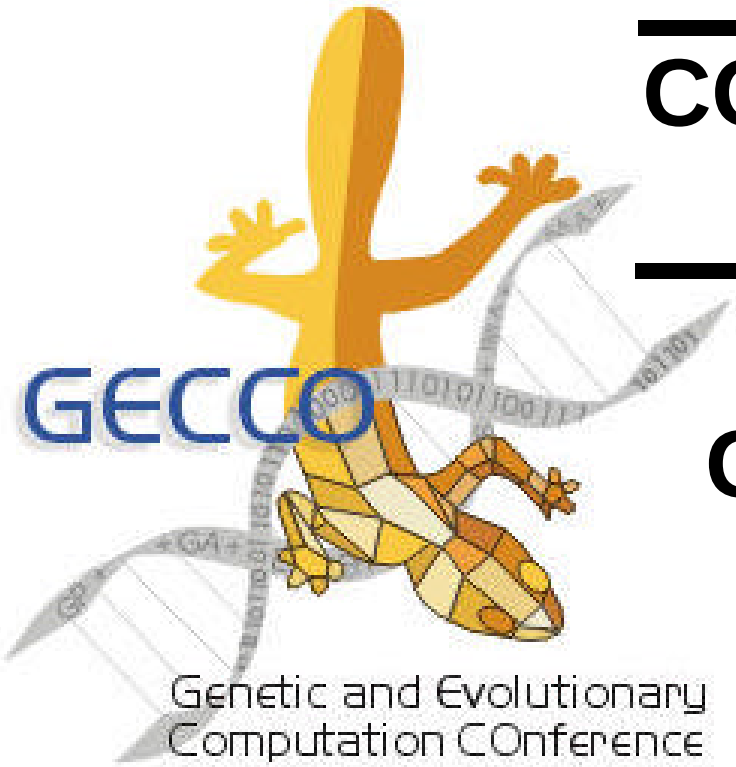

CONFERENCE PROGRAM

GECCO-2001

The Genetic and Evolutionary Computation Conference

July 7-11, 2001

Holiday Inn Golden Gateway Hotel

San Francisco, California, USA

A Recombination of the Sixth Annual Genetic Programming Conference (GP-2001) and the Tenth International Conference on Genetic Algorithms (ICGA-2001)

International Society for Genetic and Evolutionary Computation, Inc., in association with the American Association for Artificial Intelligence (AAAI)

GECCO-2001
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GECCO-2001 Organizers

International Society for Genetic and Evolutionary Computation, Inc.

In association with: American Association for Artificial Intelligence (AAAI), 445 Burgess Drive, Menlo Park, CA 94025, USA. Phone: 650-328-3123. Fax: 650-321-4457, email gecco@aaai.org.

General Chair: Erik D. Goodman, Michigan State University
Proceedings Editor-In-Chief: Lee Spector, Hampshire College
Business Committee: David Goldberg, University of Illinois Urbana-Champaign
John Koza, Stanford University
Associate Chairs: Darrell Whitley (immediate past chair), Bill Buckles (next chair)

In Affiliation with:

Fourth International Workshop on Learning Classifier Systems
Evonet: European Network of Excellence in Evolutionary Computation
NASA/DoD Workshop on Evolvable Hardware (EH-2001) (July 12-14, Pasadena, CA)
Parallel Problem Solving from Nature conferences (PPSN)
Journal of Scheduling
International Journal of Hydroinformatics

Support for Student Travel donated by:

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Sandip Sen, University of Tulsa
Ant Colony Optimization:
Marco Dorigo, Universite' Libre de Bruxelles
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Edmund Burke, University of Nottingham
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Youngsu Yun
Byoung-Tak Zhang
Gengui Zhou

The 2001 GENETIC AND EVOLUTIONARY COMPUTATION CONFERENCE

GECCO-2001

SCHEDULE OF EVENTS

Unless otherwise noted, all conference events are at the ***Holiday Inn Golden Gateway Hotel***, 1500 Van Ness Avenue, San Francisco, CA 94109 (phone: (415) 441-4000; fax: (415) 776-7155)

GECCO-2001 Conference-at-a-Glance

(All activities at Holiday Inn Golden Gateway Hotel, San Francisco, except as noted)

	Morning		Afternoon		Evening
Saturday July 7	Morning Workshops ß----------Graduate Student ß----------* 4th International Classifier Systems, at		Afternoon Workshops Workshop ----------à Workshop on Learning Cathedral Hill Hotel ---------à		Free Time! **(Enjoy San Francisco!)**
Sunday July 8	First Tutorials IWLCS cont.	Second Tutorials (Holiday Inn)	Third Tutorials (Roundtable	Fourth Tutorials ----------à)	Welcome Reception (appetizers/drinks) 6:00 – 7:00pm
Monday July 9	Plenary (Koza)	Parallel Sessions	Parallel Sessions	Parallel Sessions	Free Time!
Tuesday July 10	Plenary (Zadeh)	Parallel Sessions	Parallel Sessions	Parallel Sessions	Poster Session/ Reception (desserts/drinks) 7:00 – 10:00pm
Wednesday July 11	Plenary (ISGEC Meeting)	Parallel Sessions	Parallel Sessions	(conference ends 3:30pm)	

SATURDAY CONFERENCE REGISTRATION:

(Holiday Inn Golden Gateway Hotel, 1500 Van Ness Avenue, San Francisco):

7:30am – 1:00pm Lower Level Lobby

1:00pm – 5:30pm Carmel / Monterey Rooms

Saturday Schedule-at-a-Glance: "WORKSHOPS DAY"

Coffee Breaks 10:00 – 10:30am and 3:00 – 3:30pm, Lower Lobby (free)

	9:00am – 12:30p	Lunch Break (on your own), 12:30 – 2:00pm	2:00 – 5:30pm
Redwood Room	**Graduate Student Workshop**		**Graduate Student Workshop (continued)**
Gold Rush A	**Evolutionary Computation and Multi-Agent Systems**		**Coevolution: Turning Adaptive Algorithms upon Themselves**
Gold Rush B	**Evolutionary Algorithms for Dynamic Optimization Problems**		**Optimization by Building and Using Probabilistic Models**
Oregon Room	**Second Workshop on Memetic Algorithms**		**Real-Life Evolutionary Design Optimization**
Nevada Room	**Representations and Operators for Network Problems**		**Computation in Gene Expression**
Washington Room	**The Next Ten Years of Scheduling Research**		**Evolution of Sensors in Nature, Hardware and Simulation**
California Room	**Optimal Structural Design Using Genetic and Evolutionary Computation**		**Optimal Structural Design Using Genetic and Evolutionary Computation (continued 2:00 – 3:00pm)**
			Non-Routine Design with Evolutionary Systems (3:30 – 5:30pm)
Cathedral Hill Hotel (Meeting Room A)	**Fourth International Workshop on Learning Classifier Systems**		**4th IWLCS (continued)**

WORKSHOP SCHEDULE, Saturday, July 7, 2001

SPECIAL FULL DAY WORKSHOPS

Fourth International Workshop on Learning Classifier Systems – the IWLCS sessions ALL DAY SATURDAY will be held at the nearby Cathedral Hill Hotel, 1101 Van Ness Avenue, San Francisco, from 9:00am – 5:30pm, in meeting room Cathedral Hill A. (Day 1 of a 2-day workshop)
Pier Luca Lanzi, Wolfgang Stolzmann, and Stewart W. Wilson
Sunday's IWLCS sessions will be back at the Holiday Inn Golden Gateway Hotel

9:00am – 5:30pm Redwood Room (Holiday Inn Golden Gateway Hotel)
Graduate Student Workshop
Conor Ryan

MORNING WORKSHOPS (9:00 – 12:30), coffee break 10:00 – 10:30am, Lower Lobby

Representations and Operators for Network Problems: **Nevada Room**
Franz Rothlauf

Evolutionary Computation and Multi-Agent Systems: **Gold Rush A**
Rob Smith, Claudio Bonacina, Cefn Hoile, and Paul Marrow

Optimal Structural Design using Genetic and Evolutionary Computation: **California Room**
Scott Burns

The Next Ten Years of Scheduling Research: **Washington Room**
Peter Cowling and Graham Kendall

Second Workshop on Memetic Algorithms: **Oregon Room**
Bill Hart, Natalio Krasnogor, and Jim Smith

Evolutionary Algorithms for Dynamic Optimization Problems: **Gold Rush B**
Juergen Branke and Thomas Baeck

Lunch Break, 12:30 – 2:00pm (on your own)

AFTERNOON WORKSHOPS (2:00 – 5:30), coffee break, 3:00 – 3:30pm, Lower Lobby

Evolution of Sensors in Nature, Hardware and Simulation: **Washington Room**
Daniel Polani, Thomas Uthmann, and Kerstin Dautenhahn

Coevolution: Turning Adaptive Algorithms upon Themselves: **Gold Rush A**
Hughes Juille and Rik Belew

Optimization by Building and Using Probabilistic Models: **Gold Rush B**
Martin Pelikan and Kumara Sastry

Computation in Gene Expression: **Nevada Room**
Hillol Kargupta

Real-Life Evolutionary Design Optimisation: **Oregon Room**
Rajkumar Roy, Graham Jared, Ashutosh Tiwari, and Olivier Munaux

2:00 – 3:00pm only:
Optimal Structural Design Using Genetic and Evolutionary Computation (one-hour continuation) **California Room**
Scott Burns

3:30 – 5:30pm only:
Non-Routine Design with Evolutionary Systems: **California Room**
Josiah Poon and Mary Lou Maher

SUNDAY, July 8, 2001 -- GECCO-2001 Schedule-at-a-Glance: "TUTORIALS DAY"
Holiday Inn Golden Gateway Hotel

8:00am – 5:30pm, Carmel / Monterey: Conference Registration Open

	8:40 – 10:25am	Coffee Break, 10:25 – 10:45am, Lower Lobby	10:45am – 12:30pm	Lunch Break (on your own), 12:30 – 1:55pm	1:55 – 3:40pm	Coffee Break, 3:40 – 4:00pm, Lower Lobby	4:00 – 5:45pm	WELCOME RECEPTION, 6:00 – 7:00pm Emerald Ballroom (appetizers/drinks – bring badge & drink ticket)
Gold Rush A	Freitas: Data Mining with Evolutionary Algorithms		Ross: Evolutionary Scheduling and Routing		Cantu-Paz: Parallel Genetic Algorithms		Goldberg: Design of Competent GA's: Toward Computat. Thry of Innovation	
Gold Rush B	Deb: Multi-objective GA's		Dorigo: Ant Colony Optimization		Whitley: No-Free-Lunch Theorem		Hofmeyr: Immune System Computing	
Redwood Room	Higuchi: Evolvable Hardware		Koza: Intro to Genetic Programming		Ofria/Wilke: Digital Organisms for Study of Biological Evolution		DeJong: Evolutionary Computation: A Unified View	
Washington Room	Whitley,: Intro to Genetic Algoritnms		Stoica: On-Chip Evolvable Hardware		Gomi: Intro to Evolutionary Robotics		Banzhaf: GP with Linear/Machine Code Genomes	
Nevada Room	Karr: Intro to Adaptive Geno-Fuzzy Systems		Grierson: Evol. Design of Engineered Structures		Rechenberg: Intro to Evolution Strategies		Vose: Intro to GA Theory	
California Room	IWLCS Workshop (continued)		IWLCS Workshop (continued)		Lanzi: Intro to Classifier Systems		Chen/Deaton: Intro to DNA Computing	
Oregon Room	Langdon/Poli: Foundations of GP Theory, Part I		Langdon/Poli: Foundations of GP Theory, Part II		Roundtable, Stephens/Poli: Schema & String Dynamics in GA and GP		Roundtable (continued)	

SUNDAY, JULY 8, 2001

FOURTH INTERNATIONAL WORKSHOP ON LEARNING CLASSIFIER SYSTEMS (IWLCS) – SUNDAY SCHEDULE:

Two workshop sessions, **8:40 – 10:25am and 10:45am-12:30pm**: **California Room**

(Note: Sunday's IWLCS meeting is in the Holiday Inn Golden Gateway Hotel, NOT the Cathedral Hill)

TUTORIAL SCHEDULE, SUNDAY, JULY 8, 2001

8:40 - 10:25am, Sunday, July 8, 2001:

Darrell Whitley, **Introduction to Genetic Algorithms**	**Washington Room**
Chuck Karr, **Introduction to Adaptive Geno-Fuzzy Systems**	**Nevada Room**
Tetsuya Higuchi, **Evolvable Hardware**	**Redwood Room**
Alex Freitas, **Data Mining with Evolutionary Algorithms**	**Gold Rush A**
Kalyanmoy Deb, **Multiobjective Genetic Algorithms**	**Gold Rush B**
Bill Langdon & Riccardo Poli, **Foundations of GP Theory, I**	**Oregon Room**

10:25 – 10:45am COFFEE BREAK, LOWER LOBBY

10:45am - 12:30pm, Sunday, July 8:

John Koza, **Introduction to Genetic Programming**	**Redwood Room**
Don Grierson, **Evolutionary Design of Engineered Structures**	**Nevada Room**
Peter Ross, **Evolutionary Scheduling and Routing**	**Gold Rush A**
Adrian Stoica, **On-Chip Evolvable Hardware**	**Washington Room**
Marco Dorigo, **Ant Colony Optimization**	**Gold Rush B**
Bill Langdon & Riccardo Poli, **Foundations of GP Theory, II**	**Oregon Room**

1:55 – 5:45pm, Sunday, July 8, 2001: ***Oregon Room***

SPECIAL ROUNDTABLE DISCUSSION *(Time conflicts with afternoon Tutorials)* (if attend this session, will miss the two afternoon tutorial timeslots)

Schema and String Dynamics in Genetic Algorithms and Genetic Programming
Organized by Chris Stephens and Riccardo Poli

Afternoon Tutorials

1:55 - 3:40pm, Sunday, July 8:

Pier Luca Lanzi, **Introduction to Classifier Systems**	**California Room**
Charles Ofria & Claus Wilke, **Digital Organisms for Study of Biological Evolution**	**Redwood Room**
Darrell Whitley, **Tutorial on "No Free Lunch" Theorem**	**Gold Rush B**
Takeshi Gomi, **Introduction to Evolutionary Robotics**	**Washington Room**
Ingo Rechenberg, **Introduction to Evolution Strategies**	**Nevada Room**
Erick Cantu-Paz, **Parallel Genetic Algorithms**	**Gold Rush A**

3:40 – 4:00pm COFFEE BREAK, LOWER LOBBY

4:00 - 5:45pm, Sunday, July 8:

Dave Goldberg, **Design of Competent GA's: Toward a Computational Theory of Innovation**	**Gold Rush A**
Michael Vose, **Introduction to GA Theory**	**Nevada Room**
Ken DeJong, **Evolutionary Computation: a Unified View**	**Redwood Room**
Wolfgang Banzhaf, **GP with Linear/Machine Code Genomes**	**Washington Room**
Stephen Hofmeyr, **Immune System Computing**	**Gold Rush B**
Junghuei Chen & Russell Deaton, **Introduction to DNA Computing**	**California Room**

6:00 – 7:00pm, Sunday, July 8:

GECCO-2001 OPENING RECEPTION – EMERALD BALLROOM, Holiday Inn Golden Gateway Hotel

This reception is free for all GECCO registrants, and will include hors d'oeuvres and one free drink (each registration packet will include one ticket redeemable for the free drink; additional drinks are available from a cash bar). Please remember to bring your *GECCO registration badge and drink ticket* to the reception.

The reception is co-sponsored by Morgan Kaufmann Publishers, the publishers of the GECCO and ICGA proceedings for many years. Morgan Kaufmann will be showcasing two outstanding books and demonstrations:

> ***Creative Evolutionary Systems*, edited by Peter J. Bentley and David W. Corne, describes how art, design and music are evolved. It includes a CD which features spontaneous "jam-sessions" between GenJam and the jazz trumpeter Al Biles, who will also be *performing together "live"* at this reception; and**
>
> **The highly-anticipated book by Dr. David Fogel, *Blondie24: Playing at the Edge of AI.* David will offer you the chance to play against Blondie24, a program that evolved itself into an expert checkers player without relying on human expertise!**

Don't miss this unique GECCO Reception!

Monday Schedule-at-a-Glance

8:30 – 10:00a.m. Plenary Session Invited Talk, EMERALD BALLROOM

Routine Human-Competitive Machine Intelligence **John Koza, Stanford University**

Room	COFFEE BREAK, 10:00 – 10:30am, Lower Lobby	10:30am – 12:00noon	LUNCH BREAK, 12:00 – 1:30pm (on your own)	1:30 – 3:00pm	COFFEE BREAK, 3:00 – 3:30pm, Lower Lobby	3:30 – 6:00pm
Gold Rush A		Genetic Programming - 1		Genetic Programming – 2		Genetic Programming – 3
Gold Rush B		Genetic Algorithms: Partitioning Problems		GA: Assignment/Partitioning		GA: Self-Adaptation
Redwood Room		Evolvable Hardware		Multi-Objective Optimization - 1		GA Theory – 1, Building Blocks
Oregon Room		Classifier Systems - 1		Classifier Systems – 2		Real-World Applications - 4
Nevada Room		GA: Sampling and Dynamics		Real-World Applications - 2		Late-Breaking Papers –1
Washington Room		Artificial Life, Adaptive Behavior, & Agents - 1		Evolutionary Design of Engineered Systems		Evolution Strategies and Evolutionary Programming - 1
California Room		Real-World Applications - 1		Real-World Applications - 3		Late-Breaking Papers - 2

MONDAY, JULY 9, 2001

8:00AM - 5:00PM CARMEL / MONTEREY: CONF. REGISTRATION OPEN

8:30 - 10:00AM, MONDAY, EMERALD BALLROOM PLENARY SESSION

JOHN KOZA, STANFORD UNIVERSITY:

ROUTINE HUMAN-COMPETITIVE MACHINE INTELLIGENCE

10:00 - 10:30AM LOWER LOBBY COFFEE BREAK

10:30AM - NOON MONDAY

GOLD RUSH A: GENETIC PROGRAMMING-1 CHAIR: JOHN KOZA

The Evaluation of a Stochastic Regular Motif Language for Protein Sequences
Brian Ross

Automatic Synthesis of Both the Topology and Sizing of Metabolic Pathways Using Genetic Programming
John Koza, William Mydlowec, Guido Lanza, Jessen Yu and Martin Keane

Giving Structural Descriptions of Tree-Like Objects from Binary Images Using Genetic Programming
Robert Vanyi and Gabriella Kokai

GOLD RUSH B: GA: PARTITIONING PROBLEMS CHAIR: BYUNG-RO MOON

A Generational Scheme for Partitioning Graph
Alan J. Soper, Chris Walshaw, and Mark Cross

A Hybrid Genetic Algorithm for the Max Cut Problem
Byung-Ro Moon, Su-Hyang Kim, and Yong-Hyuk Kim

A Hybrid Genetic Search for Multi-Way Graph Partitioning Based On Direct Partitioning
Byung-Ro Moon and Jong-Pil Kim

REDWOOD ROOM: EVOLVABLE HARDWARE CHAIR: ADRIAN STOICA

Evolution of Dynamical Neural Network Arrays to Correct Arrhythmias in a Simulated Human Heart
John Gallagher

Analog Circuit Synthesis Based on Reuse of Topological Feature of Prototype Circuits
HajimeShibata and Nobuo Fujii

Evolvable Hardware for Adaptive Sensing
Didier Keymeulen, Adrian Stoica, Martin Buehler, Ricardo Zebulum, and Vu Duong

OREGON ROOM: CLASSIFIER SYSTEMS-1, CHAIR: ALWYN BARRY

A Hierarchical XCS for Long Path Environments
Alwyn Barry

How XCS Evolves Accurate Classifiers
Martin Butz, Tim Kovacs, Pier Luca Lanzi and Stewart W. Wilson

Analyzing the Evolutionary Pressures in XCS
Martin Butz and Martin Pelikan

NEVADA ROOM GA: SAMPLING AND DYNAMICS CHAIR: DIPANKAR DASGUPTA

Independent Sampling Genetic Algorithms
Chien-Feng Huang

Some Exact Results from a Coarse Grained Formulation of Genetic Dynamics
C.R. Stephens

Evolving Complex Fuzzy Classifier Rules Using a Linear Tree Genetic Representation
Dipankar Dasgupta and Fabio Gonzalez

WASHINGTON ROOM ALIFE, ADAPTIVE BEHAVIOR & AGENTS-1
CHAIR: MAX GARZON

Modular Designer Chemistries for Artificial Life
Keith Downing

Body-Brain Coevolution Using L-Systems as a Generative Encoding
Gregory S. Hornby and Jordan B. Pollack

Repeated Structure and Dissociation of Genotypic and Phenotypic Complexity in Artificial Ontogeny
Josh C. Bongard and Rolf Pfeifer

CALIFORNIA RM. REAL-WORLD APPLICATIONS - 1 CHAIR: PETER BENTLEY

Global Geometry Optimization of Atomic and Molecular Clusters by Genetic Algorithms
Bernd Hartke

Protein Structure Prediction with Immunological EA Computation
Steven R. Michaud, Gary B. Lamont, Jesse B. Zydallis, Paul K. Harmer, and Ruth Pachter

Evaluating Negative Selection in An Artificial Immune System for Network Intrusion Detection
Jungwon Kim and Peter J. Bentley

NOON - 1:30PM LUNCH BREAK (ON YOUR OWN)

1:30 - 3:00PM MONDAY

GOLD RUSH A GENETIC PROGRAMMING - 2, CHAIR: LEE SPECTOR

Finding Simplest Pattern Structures Using Genetic Programming
Mehdi Dastani, Elena Marchiori, and Robert Voorn

Faster Genetic Programming Based On Local Gradient Search of Numeric Leaf Values
William Punch and Alexander Topchy

Reducing Bloat and Promoting Diversity Using Multi-Objective Methods
Edwin D. De Jong, Richard A. Watson, and Jordan B. Pollack

GOLD RUSH B GA: ASSIGNMENT/PARTITIONING, CHAIR: ANNIE S. WU

An Incremental Fitness Function for Partitioning Parallel Tasks
Annie S. Wu, Shiyuan Jin, Guy Schiavone, and Kuo-Chi Lin

Solving Fixed Channel Assignment Problems by an Evolutionary Approach
Jorng-Tzong Horng Ming-Hui Jin, and Cheng-Yan Kao

A New Approach to the Sorting Network Problem Evolving Parallel Layers
Byung-Ro Moon and Sung-Soon Choi

REDWOOD ROOM GA: MULTI-OBJECTIVE OPTIMIZATION-1, CHAIR: CARLOS A. COELLO COELLO

Multiobjective Optimization Using a Micro-Genetic Algorithm
Carlos A. Coello Coello and Gregorio Toscano Pulido

Memetic and Evolutionary Benchmark Results for Degree-Constrained Multi-Criterion Spanning Tree Problems
Joshua D. Knowles and David W. Corne

Pesa-Ii: Region-Based Selection in Evolutionary Multiobjective Optimization
David W. Corne, Nick R. Jerram, Joshua D. Knowles, and Martin J. Oates

OREGON ROOM CLASSIFIER SYSTEMS-2, CHAIR: LASHON BOOKER

Function Approximation with a Classifier System
Stewart Wilson

Designing an Optimal Evolutionary Fuzzy Decision Tree for Data Mining
Shinn-Ying Ho and Hung-Ming Chen

Classifier Systems, Endogenous Fitness, and Delayed Rewards: a Preliminary Investigation
Lashon B. Booker

NEVADA ROOM REAL-WORLD APPLICATIONS-2, CHAIR: CONOR RYAN

Developing a Market Timing System Using Grammatical Evolution
Michael O'Neill, Anthony Brabazon, Conor Ryan and J.J. Collins

Evolutionary Optimization of Logic-Oriented Systems
Marek Reformat and Witold Pedrycz

A Genetic Algorithm for Regular Inference
Philip Hingston

WASHINGTON ROOM EVOLUTIONARY DESIGN OF ENGINEERED SYSTEMS CHAIR: DON GRIERSON

Optimal Shape and Location of Piezoelectric Materials for Topology Optimization of Flextensional Actuators
Ying Li, Xuemei Xin, Noboru Kikuchi, and Kazuhiro Saitou

Multi-Objective Evolutionary Optimization of Flexible Manufacturing Systems
Shinn-Ying Ho and Jian-Hung Chen

The Maximin Fitness Function for Multi-Objective Evolutionary Computation: Application to City Planning
R.J. Balling and S.A. Wilson

CALIFORNIA ROOM REAL-WORLD APPLICATIONS - 3 CHAIR: EDMUND BURKE

Combining Hybrid Metaheuristics and Populations for the Multiobjective Optimisation of Space Allocation Problems
E. K. Burke, P. Cowling, J. D. Landa Silva, and S. Petrovic

Genetic Algorithms as Algorithm Adversaries
Elizabeth L. Johnson

Reconstruction of Particle Flow Mechanisms with Symbolic Regression via Genetic Programming
Klaus Weinert and Marc Stautner

3:00 - 3:30PM LOWER LOBBY COFFEE BREAK

3:30 – 6:00PM MONDAY

GOLD RUSH A GENETIC PROGRAMMING-3, CHAIR: CONOR RYAN

Adaptive Genetic Programs Via Reinforcement Learning
Keith Downing

Genetic Programming for Combining Classifiers
W.B. Langdon and B.F. Buxton

Adaptive Logic Programming
Maarten Keijzer, Conor Ryan, Mike Cattolico, Michael O'Neill and Vladan Babovic

Grammar Defined Introns: An Investigation Into Grammars, Introns, and Bias in Grammatical Evolution
Michael O'Neill, Conor Ryan, and Miguel Nicolau

Priorities in Multi-Objective Optimization for Genetic Programming
Frank Schmiedle, Nicole Drechsler, Daniel Grosse, and Rolf Drechsler

GOLD RUSH B GA: SELF-ADAPTATION CHAIR: MAGDALENA BUGAJSKA

Modelling GA's with Self Adaptive Mutation Rates
J.E. Smith

An Adaptive Genetic Algorithm
Walling Cyre, Eric Kee, and Sarah Airey

Stepwise Adaption of Weights with Decay on Constraint Satisfaction Problems
B.G.W. Craenen and A.E. Eiben

Adaptive Evolvability Via Non-Coding Segment Induced Linkage
Erik K. Antonsson and Cin-Young Lee

Adaptive Mutation for Semi-Separable Problems
Mourad Elhadef and David A. Coley

REDWOOD ROOM GA THEORY – 1, BUILDING BLOCKS CHAIR: DAVID GOLDBERG

Building Block Superiority, Multimodality and Synchronization Problems
Clarissa Van Hoyweghen, David E. Goldberg and Bart Naudts

On the Supply of Building Blocks
David Goldberg, Kumara Sastry and Thomas Latoza

A Building Block Favoring Reordering Method for Gene Positions in Genetic Algorithms
Onur Tolga Sehitoglu and Gokturk Ucoluk

Building Blocks: A Combinatorial Road To Greed
Anil Menon

A Practical Schema Theorem for Genetic Algorithms Design and Tuning
David Goldberg and Kumara Sastry

OREGON ROOM REAL-WORLD APPLICATIONS-4, CHAIR: JOSIAH POON

A Hybrid Approach to Support Interactive Data Mining
Josiah Poon and Sham Prasher

A Genetic Algorithm for the Classification of Natural Corks
Nicolas Pech-Gourg and Jin-Kao Hao

Fuzzy Classifier System and Genetic Programming On System Identification Problems
J. Aguilar-Castroand M. Cerrada-Lozada

A RISC Processor for High-Speed Execution of Genetic Algorithms
Shin'ichi Wakabayashi, Shinya Koizumi, Tetsushi Koide, Kazunari Fujiwara, and Norimichi Imura

Personalized Email Marketing with a Genetic Programming Circuit Model
Byung-Ro Moon and Yung-Keun Kwon

NEVADA ROOM LATE-BREAKING PAPERS - 1 CHAIR: ANNIE WU

3:30 Toward Improvement of Sea-State Parameter Extraction of HF Radar Signals Using Genetic Algorithm
T. H. Wu, J. G. Liu, S. Z. Zhu, Y. Huang and M. Pei

3:40 Genetic Symbiosis Algorithm for Multiobjective Optimization Problems
Jiangming Mao, Kotaro Hirasawa and Jinglu Hu, Junichi Murata

3:50 Bi-Objective Genetic Algorithms for Forest Management: A Comparative Study
Els I. Ducheyne, Robert R. De Wulf and Bernard De Baets

4:00 Social Simulation Using a Multi-Agent Model Based on Classifier Systems: The Emergence of Switching Agents in the Dual Pub Problem
Terence C. Fogarty and Luis Miramontes Hercog

4:10 A Pyramidal Evolutionary Algorithm with Different Inter-Agent Partnering Strategies for Scheduling Problems
Uwe Aickelin

4:20 Parallel Genetic Algorithm for Performance-Driven Sequence Alignment
L. A. Anbarasu, V. Sundararajan and P. Narayanasamy

4:30 Knowledge Preservation and Exploitation Towards Expedited Genetic Search in a Distributed Memory System
Jason Byassee and Keith E. Mathias

4:40 New Migration Triggers of Island Genetic Algorithm for Production Scheduling Problems
Konno Masakazu, Tezuka Masaru and Hiji Masahiro

4:50 Towards Improvement in Locating of Underground Tomb Relics Using EM Radar Signals and Genetic Algorithms
M. Yao, H. Y. Meng, L. Zang, Y. Huang, Min Pei, Z. J. Huang and Norman Zhou

5:00 Distributed Evolution of Behaviour for a Group of Social Autonomous Agents
Fredrik Samuelsson and Peter Nordin

5:10 Virtual Quidditch: A Challenge Problem for Automatically Programmed Software Agents
Lee Spector, Ryan Moore and Alan Robinson

5:20 Parallel Genetic Algorithms Based on Coevolution
Dana Vrajitoru

5:30 The Multi-Zone Scheme for Designing Radar-Absorbing Materials Using GA
Jian Qian, Xiangyuan Wang, Ruixin Wu and Min Pei

5:40 Evolution of Efficient Gait with Autonomous Biped Robot Using Visual Feedback
Krister Wolff and Peter Nordin

WASHINGTON ROOM EVOLUTION STRATEGIES/EVOLUTIONARY PROGRAMMING-1
CHAIR: INGO RECHENBERG

On the Utility of Populations
Thomas Jansen and Ingo Wegener

Dynamic Weighted Aggregation for Evolutionary Multi-Objective Optimization: Why Does It Work and How?
Yaochu Jin, Markus Olhofer, and Bernhard Sendhoff

Evolution Strategy with Neighborhood Attraction - a Robust Evolution Strategy
Jutta Huhse and Andreas Zell

Main Vector Adaptation: a CMA Variant with Linear Time and Space Complexity
Jan Poland and Andreas Zell

CALIFORNIA ROOM LATE-BREAKING PAPERS - 2 CHAIR: UNA-MAY O'REILLY

3:30 Evolutionary Algorithm Driven Clustering for Prediction
Dirk Devogelaere and Marcel Rijckaert

3:40 Discovering Fuzzy Classification Rules with Genetic Programming and Co-Evolution
Roberto R. F. Mendes, Fabricio de B. Voznika, Julio C. Nievola and Alex A. Freitas

3:50 Class Prediction Based on Gene Expression: Applying Neural Networks via a Genetic Algorithm Wrapper
Benjamin Good, Jeremy Peay, Satish Pillai and Jacques Corbeil

4:00 Improving the Efficiency of Using Evolutionary Programming for Bayesian Network Learning
Shing Yan Lee, Kwong Sak Leung and Man Leung Wong

4:10 Content-Based Image Retrieval Through Local Similarity Patterns Defined by Interactive Genetic Algorithm
Zoran Stejic, Eduardo M. Iyoda, Yasufumi Takama and Kaoru Hirota

4:20 Toward a Better Sine Wave
Matthew Streeter and Lee A. Becker

4:30 Designing a New Elitist Nondominated Sorted Genetic Algorithm for a Multiobjective Long Term Groundwater Monitoring Application
Patrick M. Reed, Barbara S. Minsker and David E. Goldberg

4:40 OB_RS and TS_shifts, Two New Algorithms for the Resource-Constrained Project Scheduling Problem
Manuel Vázquez

4:50 Crossover Accelerates Evolution in GAs with a Royal Road Function
Hideaki Suzuki and Hidefumi Sawai

5:00 Performance Implications of Domain Decomposition in the Parallelisation of Genetic Search
Jonathan Vincent and Graham King

5:10 An Examination of Lamarckian Genetic Algorithms
Cameron Wellock and Brian J. Ross

5:20 Evolving Grammars with a Genetic Algorithm
Walling Cyre

5:30 Strategy Adaptation and the Role of Information in an Artificial Financial Market
José Gordillo and C. R. Stephens

5:40 Nesting of Irregular Shapes Using Feature Matching and Parallel Genetic Algorithms
Anand Uday, Erik D. Goodman and Ananda A. Debnath

Tuesday Schedule-at-a-Glance

8:30 – 10:00a.m. Plenary Session Invited Talk, EMERALD BALLROOM

From Computing with Numbers to Computing with Words –

From Manipulation of Measurements to Manipulations of Perceptions

Lotfi Zadeh, University of California, Berkeley

Room	COFFEE BREAK, 10:00 – 10:30am, Lower Lobby	10:30am – 12:00noon	LUNCH BREAK, 12:00 – 1:30pm (on your own)	1:30 – 3:00pm	COFFEE BREAK, 3:00 – 3:30pm, Lower Lobby	3:30 – 5:30pm
Gold Rush A		GA: Multi-Objective Optimization - 1		GA: Multi-Objective Optimization – 2		Parallel Genetic Algorithms
Gold Rush B		GA: Combinatorial Problems - 1		Genetic Programming - 4		Genetic Programming Theory
Redwood Room		Scheduling and Routing – 1,		Scheduling and Routing - 2		Genetic Algorithms: Potpourri - 1
Oregon Room		Classifier Systems - 3		DNA, Quantum and Molecular Computing		Genetic Algorithms Theory – 2
Nevada Room		Real-World Applications - 5		Real-World Applications - 7		Evolutionary Robotics
Washington Room		Methodology, Pedagogy, and Philosophy – 1		Artificial Life, Adaptive Behavior, and Agents - 1		Ant Colony, Artificial Life, Adaptive Behavior, and Agents - 2
California Room		Real-World Applications - 6		Evolution Strategies and Evolutionary Programming - 2		Late-Breaking Papers - 3

7:00pm – 10:00pm: GECCO – 2001 POSTER SESSION and RECEPTION – EMERALD BALLROOM

Open to all GECCO-2001 registrants with registration badge. First drink free with drink ticket from registration package.

TUESDAY, JULY 10, 2001

8:00AM - 5:00PM CARMEL / MONTEREY: CONFERENCE REGISTRATION OPEN

8:30 - 10:00AM, TUESDAY, BALLROOM PLENARY SESSION

LOTFI ZADEH, UNIVERSITY OF CALIFORNIA, BERKELEY

FROM COMPUTING WITH NUMBERS TO COMPUTING WITH WORDS -- FROM MANIPULATION OF MEASUREMENTS TO MANIPULATIONS OF PERCEPTIONS

10:00 - 10:30AM LOWER LOBBY COFFEE BREAK

10:30AM - NOON TUESDAY

GOLD RUSH A GA: MULTI-OBJECTIVE OPTIMIZATION-1 CHAIR: RAJKUMAR ROY

Interaction and Multi-Objective Optimisation
Ashutosh Tiwari, Rajkumar Roy, Graham Jared, and Olivier Munaux

Nonlinear Constraint Handling Technique via Angular Transformation
K.C. Tan, T.H. Lee, D. Khoo, and E.F.Khor

A Fitness Formulation for Constrained Minimization
R.Farmani

GOLD RUSH B GA: COMBINATORIAL PROBLEMS-1 CHAIR: CHARLES OFRIA

A Genetic Algorithm for Traveling Salesman Problems
Huai-Kuang Tsai, Jinn-Moon Yang, and Cheng-Yan Kao

"Forging" Optimal Solutions To the Edge-Coloring Problem
Roger L. Wainwright and Brandon P. Enochs

Using Evolutionary Algorithms To Tackle Large Scale Grouping Problems
Allan Tucker, Stephen Swift, and Ziaohui Liu

REDWOOD ROOM SCHEDULING AND ROUTING-1, CHAIR: EDMUND BURKE

Acceptance Driven Local Search and Evolutionary Algorithms
Eric Poupaert and Yves Deville

A Reconfigurable Optimizing Scheduler
David J. Montana

Finding Worst-Case Flexible Schedules Using Coevolution
Mikkel T. Jensen

OREGON ROOM CLASSIFIER SYSTEMS-3 CHAIR: PIER LUCA LANZI

CXCS: Improvements and Corporate Generalization
Andy Tomlinson and Larry Bull

Adding a Generalization Mechanism To YACS
Pierre Gerard and Olivier Sigaud

Mining Interesting Knowledge from Data with the XCS Classifier System
Pier Luca Lanzi

NEVADA ROOM REAL-WORLD APPLICATIONS-5 CHAIR: HITOSHI IBA

Using Genetic Algorithms To Design Linear Congruential Pseudorandom Number Generators
J.C. Hernandez, A. Ribagorda, P. Isasi, and J.M. Sierra

A Genetic Algorithm for the P-Median Problem
Alex A. Freitas, Elon S. Correa, Maria Teresinha , A. Steiner, and Celso Carnieri

Solving Elliptical Partial Differential Equations in a Natural Way
J.A. Jimenez, J.C. Abderraman, P.D. Cuesta, and G. Winter

WASHINGTON ROOM METHODOLOGY, PEDAGOGY, AND PHILOSOPHY-1, CHAIR: KEN DE JONG

The Phase Transition in NK Landscapes Is Easy
Joseph Culberson and Yong Gao

What Can We Learn from No Free Lunch? A First Attempt to Characterize the Concept of a Searchable Function
Steffen Christensen and Franz Oppacher

An Empirical Analysis of Collaboration Methods in Cooperative Coevolutionary Algorithms
R. Paul Wiegand, William C. Liles, and Kenneth A. De Jong

CALIFORNIA ROOM REAL-WORLD APPLICATIONS-6 CHAIR: MITSUO GEN

Improving the Performance of a Genetic Algorithm for Minimum Span Frequency Assignment Problem with an Adaptive Mutation Rate and a New Initialization Method
Shouichi Matsui and Ken-Ichi Tokoro

Selecting Dimensions and Delay Values for a Time-Delay Embedding Using a Genetic Algorithm
Richard Povinelli and James B. Vitrano

A Genetic Algorithm for Generating a Steiner Tree with Wire Sizing and Buffer Insertion
Shin'ichi Wakabayashi and Masakazu Ohsako

NOON - 1:30PM LUNCH BREAK (ON YOUR OWN)

1:30 - 3:00PM TUESDAY

GOLD RUSH A GA: MULTI-OBJECTIVE OPTIMIZATION-4 CHAIR: HELIO BARBOSA

Exploratory Multi-Objective Evolutionary Algorithm: Performance Study and Comparisons
K.C. Tan, T.H. Lee, and E.F.Khor

An Interactive Genetic Algorithm with Co-Evolution of Weights for Multiobjective Problems
Helio J.C. Barbosa and Andre M.S. Baretto

Crossing the Road To Efficient Ideas for Permutation Problems
Peter Bosman and Dirk Thierens

GOLD RUSH B GENETIC PROGRAMMING-4 CHAIR: LEE SPECTOR

Evolving Strategies for Global Optimization - a Finite State Machine Approach
Clemens Frey and Gunter Leugering

A Survey and Comparison of Tree Generation Algorithms
Sean Luke

Autoconstructive Evolution: Push, Pushgp, and Pushpop
Lee Spector

REDWOOD ROOM SCHEDULING AND ROUTING-2 CHAIR: PETER ROSS

A Hybrid Genetic Algorithm for the Generalized Traveling Salesman Problem
Jean-Yves Potvin and Daniel Deladurantaye

A Fuzzy Theory Based Evolutionary Approach for Driver Scheduling
Jingpeng Li and Raymond S.K. Kwan

Local Search and Evolutionary Computation for Arc Routing in Garbage Collection
Thomas Bousonville

OREGON ROOM DNA, QUANTUM AND MOLECULAR COMPUTING, CHAIR: MAX GARZON

DNA and Quantum Computers
Russell Deaton

Quantum Evolutionary Programming
Bart Rylander, Terry Soule, and James Foster

Distributed Virtual Test Tubes
Max Garzon and Chris Oehmen

NEVADA ROOM REAL-WORLD APPLICATIONS-7, CHAIR: BYUNG-RO MOON

Genetic Algorithms in Elevator Car Routing Problem
Tapio Tyni and Jari Ylinen

Soft Sensor Development Using Genetic Programming
Arthur Kordon and Guido Smits

Adaptive and Dynamic Elevator Group Control with a Genetic Algorithm
Byung-Ro Moon and Jung-Hwan Kim

WASHINGTON ROOM ALIFE, ADAPTIVE BEHAVIOR & AGENTS-1
CHAIR: WOLFGANG STOLZMANN

Evolution of Strategies in Repeated Stochastic Games with Full Information of the Payoff Matrix
Kristian Lindgren and Anders Eriksson

Credit Assignment Method for Learning Effective Stochastic Policies in Uncertain Domains
Sachiyo Arai and Katia Sycara

Effects of Swarm Size On Cooperative Particle Swarm Optimisers
Frans Van Den Bergh and A.P. Englebrecht

CALIFORNIA ROOM EVOLUTION STRATEGIES/EVOLUTIONARY PROGRAMMING-2
CHAIR: INGO RECHENBERG

Fuzzy Evolutionary Algorithm for VLSI Placement
Sadiq Sait, Habib Youssef, and Junaid A. Khan

Evolution Strategies for the Optimization of Microdevices
Sibylle Muller, Ivo Sbalzarini, Jens Walther, and Petros Koumoutsakos

An Iterative Heuristic for State Justification in Sequential ATPG
Aiman H. El-Maleh, Sadiq M. Sait, and Syed Z. Shazli

3:00 - 3:30PM LOWER LOBBY COFFEE BREAK

3:30 - 5:30PM TUESDAY

GOLD RUSH A PARALLEL GENETIC ALGORITHMS CHAIR: ERICK CANTU-PAZ

Hybrid Particle Swarm Optimiser with Breeding and Subpopulations
Morten Lovbjerg and Thomas Kiel Rasmussen

Knowledge-Independent Data Mining with Fine-Grained Parallel Evolutionary Algorithms
Xavier Llora and Josep M. Garrell

A Parallel Genetic Algorithm with Adaptive Adjustment of Genetic Parameters
Shin'ichi Wakabayashi, Naoyoshi Toshine, Nobuyuki Iwauchi, Tetsushi Koide, and Isao Nishimura

Increasing the Robustness of Distributed Genetic Algorithms by Parallel Cooperative-Competitive Genetic Operators
Hernan E.Aguirre, Kiyoshi Tanaka, Tasuo Sugimura, and Shinjiro Oshita

GOLD RUSH B GENETIC PROGRAMMING THEORY CHAIR: WOLFGANG BANZHAF

Exact Schema Theory for GP and Variable-Length GAs with Homologous Crossover
Riccardo Poli and Nicholas Freitag McPhee

Markov Models for GP and Variable-Length GAs with Homologous Crossover
Riccardo Poli, Janathan E. Rowe, and Nicholas Freitag McPhee

Evolution of Genetic Code On a Hard Problem
Robert E. Keller and Wolfgang Banzhaf

When Short Runs Beat Long Runs
Sean Luke

REDWOOD ROOM GENETIC ALGORITHMS: POTPOURRI - 1 CHAIR: FRANZ ROTHLAUF

A Genetic Algorithm with Multiple Reading Frames
Terence Soule

Using Genetic Algorithms for Learning Clauses in First-Order Logic
Alireza Tamaddoni-Nezhad

A Diversity-Control-Oriented Genetic Algorithm (Dcga): Performance Improvement by the Reinitialization of Population
Hisashi Shimodaira

On the Mean of the Second Largest Eigenvalue On the Convergence Rate of Genetic Algorithms
Florian Schmitt and Franz Rothlauf

OREGON ROOM GENETIC ALGORITHMS THEORY - 2 CHAIR: DAVE GOLDBERG

Verification and Extension of Theory of Global-Local Hybrids
Abhishek Sinha and David E. Goldberg

Reducing the Sampling Variance When Searching for Robust Solutions
Jurgen Branke

Escaping Hierarchical Traps with Competent Genetic Algorithms
Martin Pelikan and David E. Goldberg

Bayesian Optimization Algorithm, Decision Graphs and Occam's Razor
Martin Pelikan, David E Goldberg and Kumara Sastry

NEVADA ROOM EVOLUTIONARY ROBOTICS CHAIR: ALAN SCHULTZ

Visual Obstacle Avoidance Using Genetic Programming First Results
Martin C. Martin

The Incremental Evolution of Gaits for Hexapod Robots
Gary B. Parker

Evolution for Behavior Selection Accelerated by Activation/Termination Constraints
Eiji Uchibe, Masakazu Yanase, and Minoru Asada

Evolving a Nervous System of Spiking Neurons for a Behaving Robot
R.L.B. French and R.I. Damper

WASHINGTON ROOM ANT COLONY, ALIFE, ADAPTIVE BEHAVIOR & AGENTS CHAIR: ALEX FREITAS

An Ant Colony Optimization Approach To Dynamic TSP
Michael Guntsch, Martin Middendorf, and Hartmut Schmeck

Antminer: an Ant Colony Based System for Mining Medical Data
Rafael Stubs, Parpinelli Heitor, S. Lopes, and Alex A. Freitas

On the Influence of Learning Time on Evolutionary Online Learning of Cooperative Behavior
Jorg Denzinger and Michael Kordt

Genetic Algorithm Applied to Automatic Generation of Gestures in Avatars
Pedro Isasi, Antonio Berlanga, and Javier Segovia

CALIFORNIA ROOM LATE-BREAKING PAPERS – 3, CHAIR: CHARLES OFRIA

3:30 PLANTWORLD: The Evolution of Plant Dormancy in Contrasting Environments
Jacqueline R. Dyer, Peter J. Bentley and Panash Shah

3:40 Optimal Sequenced Matroid Bases Solved by a GA with Feasibility Including Applications
Michael Gargano and William Edelson

3:50 Bond Graph Representation and GP for Automated Analog Filter Design
Zhun Fan, Jianjun Hu, Kisung Seo, Erik D. Goodman, Ronald C. Rosenberg and Baihai Zhang

4:00 Exploring the Optimal Design of a New MEMS Phase Shifter Using Genetic Algorithms
L. Huang, G. L. Wu, S. Z. Zhu, Y. Huang, Min Pei, Z. J. Huang and Norman Zhou

4:10 Analog Circuits Design Centering Using a Hybrid GA Technique
Yaser M. A. Khalifa

4:20 Combining Genetic Algorithms and Case-Based Reasoning for Genetic Learning of a Casebase: A Conceptual Framework
Leen-Kiat Soh and Costas Tsatsoulis

4:30 Agency-GP: Agent-Based Genetic Programming for Design
Una-May O'Reilly, Peter Testa, Simon Greenwold and Martin Hemberg

4:40 A Self-Adaptive Hybrid Genetic Algorithm
Felipe P. Espinoza, Barbara S. Minsker and David E. Goldberg

4:50 Non-Linear Bit Arrangements in Genetic Algorithms
William A. Greene

5:00 Biologically Inspired Data Compression Induced by Reading Frames on Artificial ptGA Chromosomes
Helmut Mayer

5:10 Genetic Algorithm for Systems with 2D Genotype
Andrzej Pindor

5:20 Population Improvement with Data Oriented Genetic Operators
Marie-Claude Portmann, Mohamed-Ali Aloulou

7:00pm – 10:00pm TUESDAY, BALLROOM

POSTER SESSON AND POSTER RECEPTION

This session is open to all GECCO registrants. All authors presenting posters will have an easel at which their poster is displayed (a total of 115 poster presentations were accepted). A one-page abstract of each poster presentation is included in the published GECCO Proceedings. Registrants are welcomed to discuss the research with the authors of each poster. In particular, at least one author of each poster should be available at his/her poster to meet persons with questions between 7:30pm and 8:00pm. Of course, many authors will choose to spend most of the session (7:00 – 10:00pm) near their poster, whenever they are not visiting other posters.

All poster authors have already been emailed details about the materials and time period available for setting up their posters. The time for preparing posters for display is 12:30 – 5:00pm Tuesday, in the Emerald Ballroom. One 30" x 40" foam core poster board will be provided for each accepted poster paper. Push pins and glue sticks will also be available. Once your poster is mounted, you may place it on an easel at a position of your choice within the Emerald Ballroom. NOTE: If you wish to keep your poster presentation, please remove it from your poster board sometime between 10:00 – 10:30pm Tuesday evening. If you have further questions, please inquire of AAAI staff at the GECCO registration desk, or, in advance, by email to gecco@aaai.org.

An assortment of desserts will be available (éclairs, pies, cakes, mini-cheesecakes, and petit fours). Complimentary coffee, tea, and decaffeinated coffee will be available, and other drinks may be purchased from a cash bar. Your GECCO-2001 admission badge is your pass to enter the poster session and reception – please remember to wear it.

Wednesday Schedule-at-a-Glance

8:30 – 10:00a.m., Plenary Session, EMERALD BALLROOM

Annual Business Meeting, International Society for Genetic and Evolutionary Computation (ISGEC)

Dave Goldberg, ISGEC Chair

Room	COFFEE BREAK, 10:00 – 10:30am, Lower Lobby	10:30am – 12:00noon	LUNCH BREAK, 12:00 – 1:30pm (on your own)	1:30 – 3:30pm	CONFERENCE ADJOURNS, 3:30pm
Gold Rush A		GA: Combinatorial Problems - 2		GA: Hybrid/Neural Net Approaches	
Gold Rush B		Genetic Programming - 5		Genetic Algorithms: Back to Biology	
Redwood Room		Genetic Algorithms: Potpourri – 2		Genetic Algorithms: Design of Competent/Efficient GA's	
Oregon Room		Genetic Algorithms: The Royal Road Revisited		Genetic Algorithms: Theory - 3	
Nevada Room		GA: Multi-Objective Optimization - 2		Late-Breaking Papers – 5	
Washington Room		Artificial Life, Adaptive Behavior, and Agents - 3		Real-World Applications 8	
California Room		Late-Breaking Papers - 4		Late-Breaking Papers – 6	

WEDNESDAY, JULY 11, 2001

8:00AM - 3:00PM CARMEL / MONTEREY: CONF. REGISTRATION OPEN

8:30 - 10:00AM EMERALD BALLROOM: PLENARY SESSION

ISGEC MEMBERSHIP MEETING – ALL ATTENDEES WELCOME

(CHAIRED BY DAVE GOLDBERG)

10:00 - 10:30AM LOWER LOBBY COFFEE BREAK

10:30AM - NOON WEDNESDAY

GOLD RUSH A GA: COMBINATORIAL PROBLEMS-2 CHAIR: FRANZ ROTHLAUF

Prufer Numbers: A Poor Representation of Spanning Trees for Evolutionary Search
Bryant Julstrom, Jens Gottlieb, Gunther R. Raidl, and Franz Rothlauf

The Spontaneous Evolution Genetic Algorithm for Solving the Traveling Salesman Problem
Ching-Chi Hsu and William W. Hsu

Three-Objective Genetic Algorithms for Designing Compact Fuzzy Rule-Based Systems for Pattern Classification Problems
Tadahiko Murata, Shuhei Kawakami, Hiroyuki Nozawa, Mitsuo Gen, and Hisao Ishibuchi

GOLD RUSH B GENETIC PROGRAMMING - 5 CHAIR: BILL LANGDON

Genetic Programming Using Chebishev Polynomials
Nikolay Nikolaev and Hitoshi Iba

Automated Discovery of Numerical Approximation Formulae via Genetic Programming
Matthew Streeter and Lee A. Becker

Genetic Programming Solution of the Convection-Diffusion Equation
Daniel Howard and Simon C. Roberts

REDWOOD ROOM GA: POTPOURRI-2 CHAIR: ALEXANDER TOPCHY

The Mixture of Trees Factorized Distribution Algorithm
Roberto Santana, Alberto Ochoa-Rodriguez, and Marta R. Soto

Probing the Persistent Question Marks
Janet Wiles, Ruth Schulz, Jennifer Hallinan, Scott Bolland, and Bradley Tonkes

Efficient Fitness Estimation in Noisy Environments
Jurgen Branke, Christian Schmidt, and Hartmut Schmeck

OREGON ROOM GENETIC ALGORITHMS: ROYAL ROAD REVISITED, CHAIR: TED BELDING

Real Royal Road Functions - Where Crossover Provably Is Essential
Thomas Jansen and Ingo Wegener

A Comparison of Cohort GA with Canonical Serial and Island-Model Distributed GA's
Huafeng Pei and Erik Goodman

Potholes on the Royal Road
Theodore C. Belding

NEVADA ROOM GA: MULTI-OBJECTIVE OPTIMIZATION-2, CHAIR: DIRK THIERENS

A Genetic Algorithm with Pareto Selection for Discovery of Robust Strategies in Games
Jason Noble and Richard A. Watson

On a New Constraint Handling Technique for Multi-Objective Genetic Algorithms
Shapour Azarm and Jin Wu

Multi-Objective Mixture-Based Iterated Density Estimation Evolutionary Algorithms
Dirk Thierens and Peter A.N. Bosman

WASHINGTON ROOM ALIFE, ADAPTIVE BEHAVIOR & AGENTS-3
CHAIR: BOB REYNOLDS

A Single Queen Single Worker Honey-Bees Approach to 3-Sat
Hussein Abbass

Understanding the Role of Learning in the Evolution of Busy Beavers: a Comparison Between the Baldwin Effect and a Lamarckian Strategy
Francisco Jose Baptista and Pereira Ernesto Costa

A Collective Genetic Algorithm
Thomas Miconi

CALIFORNIA ROOM LATE-BREAKING PAPERS - 4 CHAIR: BILL BUCKLES

10:30 A Bound on GA Convergence
Kurt Burnette and Bart Rylander

10:40 Modelling the Performance of Evolutionary Algorithms on the Satisfiability Problem
Nicolas G. Fournier

10:50 Building Adaptive Computer Generated Forces: The Effect of Increasing Task Reactivity on Human and Machine Control Abilities
Magdalena D. Bugajska, Alan C. Schultz, J. Gregory Trafton, Shaun Gittens and Farilee Mintz

11:00 Competition and Cooperation in Extended Evolutionary Algorithms
Hartmut Pohlheim

11:10 Analysis of Evolutionary Search with Mutators using a Stochastic Lyapunov Function
Mikhail A. Semenov

11.20 Complexity as Fitness for Evolved Cellular Automata Update Rules
Em Ward, Douglas S. Blank, Douglas Rolniak and Dale R. Thompson

11:30 Task-Dependent Evolution of Modularity in Neural Networks - A Quantitative Case Study
Michael Hüsken, Christian Igel and Marc Toussaint

11:40 A Genetic Programming System with a Procedural Program Representation
John G. Hagedorn and Judith E. Devaney

11:50 Hybridizing Bayesian Optimization and Tabu Search for Multimodal Functions
Yuji Katsumata, Setsuya Kurahashi and Takao Terano

NOON - 1:30PM LUNCH BREAK (ON YOUR OWN)

1:30 - 3:30PM WEDNESDAY

GOLD RUSH A GA: HYBRID/NEURAL NET APPROACHES CHAIR: CHUCK KARR

Agent Motion Planning with GA's Enhanced by Memory Models
Martijn Bot, Neil Urquhart, and Ken Chisholm

Evolving Populations of Expert Neural Networks
Joseph Bruce and Risto Miikkulainen

Evolving Heterogeneous Neural Networks for Classification Problems
Andre L.V. Coelho, Daniel Weingaertner, Fernando J. Von Zuben

GOLD RUSH B GA: BACK TO BIOLOGY CHAIR: BILL BUCKLES

A Double-Stranded Encoding Scheme with Inversion Operator
Paul Kennedy and Thomas R. Osborn

On Biologically Inspired Genetic Operators: Transformation in the Standard Genetic Algorithm
Anabela Simoes and Ernesto Costa

Study of Crossover in One Max Problem by Linkage Analysis
Hiroshi Furutani

Coevolutionary Dynamics in a Minimal Substrate
Richard Watson

REDWOOD ROOM GENETIC ALGORITHMS: DESIGN OF COMPETENT/EFFICIENT GA'S CHAIR: NATALIO KRASNOGAR

Emergence of Profitable Search Strategies Based on a Simple Inheritance Mechanism
Natalio Krasnogor and James Smith

Don't Evaluate, Inherit
Kumara Sastry, David E Goldberg and Martin Pelikan

The Effects of Crossover and Mutation Operators On Variable Length Linear Structures
Jonathan E. Rowe and Nicholas Freitag McPhee

Verification of the Theory of Genetic and Evolutionary Continuation
Ravi Srivastava and David E Goldberg

OREGON ROOM GENETIC ALGORITHMS THEORY - 3 CHAIR: DARRELL WHITLEY

A Genetic Algorithm Architecture by Coordinating Exploration and Exploitation
Rui Jiang, K.Y. Szeto, Yupin Luo, and Dongcheng Hu

Cyclic and Chaotic Behaviour in Genetic Algorithms
Alden Wright and Alexandra Agapie

Evolutionary Algorithms in Control Optimization: the Greenhouse Problem
Bogdan Filipic, Thiemo Krink, and Rasmus K. Ursem

No Free Lunch and Problem Description Length
Darrell Whitley, C. Schumacher, and M. Vose

NEVADA ROOM LATE-BREAKING PAPERS – 5 CHAIR: RAJKUMAR ROY

1:30 Genetic Programming for Layered Learning of Multi-Agent Tasks
William H. Hsu and Steven M. Gustafson

1:40 Network Structure Oriented Evolutionary Model-Genetic Network Programming-and its Comparison with Genetic Programming
Hironobu Katagiri, Kotaro Hirasawa, Jinglu Hu and Junichi Murata

1:50 Genetic Programming for Grammar Induction
Ermin Erkan Korkmaz and Göktürk Üçoluk

2:00 Generating Programs for Solving Vector and Matrix Problems using Genetic Programming
Socrates A. Lucas-Gonzalez and Hugo Terashima-Marin

2:10 What Bloat? Cartesian Genetic Programming on Boolean Problems
Julian Miller

2:20 Subtree Encapsulation Versus ADFs in Genetic Programming for the Even-5-Parity Problem
Simon C. Roberts, Daniel Howard and John R. Koza

2:30 Managing Information Complexity in a Supply Chain Model by Agent-Based Genetic Programming
Ken Taniguchi, Setsuya Kurahashi and Takao Terano

2:40 Genetic Programming with Efficient Population Control for Financial Time Series Prediction
Neal Wagner and Zbigniew Michalewicz

2:50 Modeling Sparse Engine Test Data Using Genetic Programming
Tina Yu and Jim Rutherford

3:00 New IDEAs and More ICE by Learning and Using Unconditional Permutation Factorizations
Peter A. N. Bosman and Dirk Thierens

3:10 Comparing a Genetic Algorithm and Hill-Climbing on the Minimum Routing Cost Spanning Tree Problem
Bryant Julstrom

3:20 First Steps Towards Using Genetic Programming to Solve a Distributed Radio Frequency Management Problem
Claire J. Kennedy

WASHINGTON ROOM REAL-WORLD APPLICATIONS - 8 CHAIR: BOB REYNOLDS

Aircraft Ground Traffic Optimisation Using a Genetic Algorithm
Nicolas Durand, Brankica Pesic, Jean-Marc Alliot

Motion Analysis of Moving Objects with Genetic Algorithms
Ryuji Goto and Yuji Sato

Using Cultural Algorithms To Improve Knowledge Base Maintenance
Nestor Rychtyckyj and Robert G. Reynolds

CALIFORNIA ROOM LATE-BREAKING PAPERS - 6 CHAIR: ALWYN BARRY

1:30 Proposal of Eco-Evolution
Yoshiji Fujimoto and Katsunori Shimohara

1:40 GENR8 - A Design Tool for Surface Generation
Martin Hemberg, Una-May O'Reilly and Peter Nordin

1:50 Evolvable Ant Colony Systems for Pseudo-Random Number Generation
Jason C. Isaacs, Robert K. Watkins and Simon Y. Foo

2:00 Evolvable Random Number Generators: A Schemata-Based Approach
Jason C. Isaacs, Robert K. Watkins and Simon Y. Foo

2:10 Two-Level Boolean Logic Minimization Using Microbial Genetic Algorithms
Sumanth Jagannathan and Jay Kumar S

2:20 Agent Based Artificial Immune System
António Grilo, Artur Caetano and Agostinho Rosa

2:30 Evolution of an Object Detection Ant for Image Analysis
Daniel Howard, Simon C. Roberts and Conor Ryan

2:40 Multi-Criterion Optimization of Robot Trajectories with Evolutionary Strategies
Matthias Ortmann and Wolfgang Weber

2:50 Biased Genotype Variation in Evolutionary Algorithms using Phenotype Information
Rui Tavares and Agostinho C. da Rosa

3:00 A Hybrid Genetic Algorithms for Job Shop Scheduling Problems
Byung Joo Park, Hyung Rim Choi and Hyun Soo Kim

3:10 Using Evolutionary Algorithms to Tackle Large Scale Grouping Problems: An Application to Email Log File Data
Steve Counsell, Xiaohui Liu, Janet McFall, Stephen Swift and Allan Tucker

3:20 A Study on the Resource Allocation Planning for Automated Container Terminals
Yang-Ja Jang, Woo Chang, Seong-Yong Jang and Jin-Woo Park

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