

Preface

These proceedings contain the papers presented at the 10th *Annual Genetic and Evolutionary Computation Conference* (GECCO-2008), held in Atlanta, Georgia, July 12-16, 2008.

GECCO has returned to the U.S. and maintains an impressive record of both submission totals and acceptance rate. This year there were 451 papers submitted, with 199 accepted, giving an acceptance rate of 42%. This is the first year that GECCO has moved over to electronic proceedings, and we are confident that regular attendees will be pleased with this change, as it greatly facilitates the keeping of all conference materials.

GECCO is a somewhat unusual conference with its concept of *one conference, many mini-conferences*. This year, there were 15 separate tracks that operated independently from each other. All tracks have their own track chair(s) and program committee. A member of a track's program committee is not allowed to simultaneously be a member of another track's committee. To reduce any bias reviewers might have, all reviews were conducted double blind. No author's names were included in the reviewed papers. About 500 researchers participated in the reviewing process. Their work is much appreciated and it is absolutely vital for the quality of the conference.

In addition to the presentation of the papers contained in these proceedings, GECCO-2008 also includes workshops, free tutorials, a series of sessions on Evolutionary Computation in Practice, late-breaking papers, and awards in human-competitive results.

The 22 track chairs deserve special thanks for their efforts in assembling their program committee, performing the paper assignments, and finally making the difficult acceptance or rejection decisions. Track chairs were not allowed to accept more than 50% of the track's submissions as full paper. This upper bound on the acceptance rate represents a healthy selection pressure in order to preserve the quality of the conference, and even though we are no longer bound by physical limits on the number of accepted papers, we have striven to keep our acceptance rate at the lower end.

The scientific quality of the conference as well as that of the proceedings is ensured by principles laid down in the GECCO by-laws of SIGEVO:

- (i) The GECCO conference shall be a broad-based conference encompassing the whole field of genetic and evolutionary computation.
- (ii) Papers will be published and presented as part of the main conference proceedings only after being peer reviewed. No invited papers shall be published (except for those of up to three invited plenary speakers).
- (iii) The peer review process shall be conducted consistent with the principle of division of powers performed by a multiplicity of independent program committees, each with expertise in the area of the paper being reviewed.
- (iv) The determination of the policy for the peer review process for each of the conference's independent program committees and the reviewing of papers for each program committee shall be performed by persons who occupy their positions by virtue of meeting objective and explicitly stated qualifications based on their previous scientific research activity or applications activity.

- (v) Emerging areas within the field of genetic and evolutionary computation shall be actively encouraged and incorporated in the activities of the conference by providing a semi-automatic method for their inclusion into the activities of the conference (with some procedural flexibility being extended to such emerging new areas).
- (vi) The percentage of submitted papers that are accepted as regular papers (i.e., papers other than poster papers) shall not exceed 50%.

<i>Track Name</i>	<i>Track Chair(s)</i>
Ant Colony Optimization, Swarm Intelligence, and Artificial Immune Systems	James Kennedy
Artificial Life, Evolutionary Robotics, Adaptive Behavior, Evolvable Hardware	Gregory S. Hornby
Bioinformatics and Computational Biology	Clare Bates Congdon and Jason H. Moore
Coevolution	Frank Neumann
Estimation of Distribution Algorithms	Jordan Pollack
Evolution Strategies, Evolutionary Programming	Kumara Sastry
Evolutionary Combinatorial Optimization	Kalyanmoy Deb and El-Ghazali Talbi
Evolutionary Multiobjective Optimization	Nikolaus Hansen
Formal Theory	Benjamin Doerr and Ingo Wegener
Generative and Developmental Systems	Sanjeev Kumar and Ken Stanley
Genetic Algorithms	Martin Pelikan and Fernando Lobo
Genetic Programming	Julian Miller
Genetics-Based Machine Learning and Learning Classifier Systems	John Holmes
Real-World Application	Daniel Howard and Adrian Stoica
Search-based Software Engineering	Giuliano Antoniol

In addition to the track chairs a special word of thanks goes to Pat Cattolico whose help and guidance was invaluable for getting all the non-scientific issues right.

Finally, special thanks are due to the numerous researchers and practitioners, who submitted their best work to GECCO-2008, presented a tutorial, organized a workshop, or volunteered their time in any other way.

Conor Ryan
General Chair

Maarten Keijzer
Editor-in-Chief