

Editorial introduction

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This is the first issue of the tenth volume of *Genetic Programming and Evolvable Machines*, and the first under a new Editor-in-Chief. Wolfgang Banzhaf gestated, birthed, nurtured, and sustained this journal, beginning with only a perceived need but producing, after a few short years, a strong and consistent venue for high quality work in a growing interdisciplinary field. My primary goal as incoming Editor is to continue this tradition. A few enhancements are under development, including an expanded on-line presence and improvements to our reviewing processes, but all of these will be in the service of the journal's existing mission.

Our plans for the near future include two special issues, one on parallel approaches to evolutionary computation and another that looks both forward and back as the journal enters its second decade, assessing the state of the field and articulating open questions and promising directions.

Most of the work for the current issue was performed by Wolfgang Banzhaf and other members of the editorial board before the editorial transition began, late in 2008; it is to them, and to the reviewers acknowledged below, that primary credit for this issue and much of this volume is due.

The present issue includes three full research articles and two book reviews.

In “Scaling of Program Functionality” W. B. Langdon provides a novel theoretical analysis of the relations between size and functionality for several classes of programs. Many aspects of his analysis apply to all possible systems that search for computer programs, but Dr. Langdon also describes specific implications of his analysis for genetic programming and provides experimental confirmation of his results.

In “An improved representation for evolving programs” M. S. Withall, C. J. Hinde, and R. G. Stone describe a new representation for evolving programs that

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combines features of traditional linear and tree-based representations. They present the results of several experiments using their new representation and they discuss implications for the scalability of genetic programming to more complex problems.

In “Solution of matrix Riccati differential equation for nonlinear singular system using genetic programming” P. Balasubramaniam and A. Vincent Antony Kumar show how genetic programming can be used to solve differential equations of a particular important class. They compare the genetic programming approach to the traditional Runge Kutta method and they provide experimental confirmation of efficiency improvements.

The book reviews in this issue, edited by W. B. Langdon, cover two edited volumes: *The Mechanical Mind in History*, which was edited by P. Husbands, O. Holland, and M. Wheeler (reviewed by P. Collet), and *Evolutionary Computation in Practice: Studies in Computational Intelligence*, which was edited by T. Yu, D. Davis, C. Baydar, and R. Roy (reviewed by L. M. Deschaine).

I hope that you find these contributions to be both enjoyable and informative, and that you will consult these pages frequently in the coming months and years to follow the field’s continuing progress.