Genetic Programming and Evolvable Machines
~Call for Papers~

Special Issue on
Genetic Improvement

Genetic Improvement is the application of evolutionary and search-based optimisation methods to the improvement of existing software. For example, it may be used to automate the process of bug-fixing or to minimise bandwidth, memory or energy use. Genetic programming can use human-written software as a feed stock for GI and is able to evolve mutant software tailored to solving particular problems. Other interesting areas are automatic software transplantation, as well as "grow-and-graft" genetic programming, where software is incubated outside its target human written code and subsequently grafted into it via genetic improvement.

Work on genetic improvement has resulted in several awards, including three "Humies", awarded for human-competitive results. This includes the bug fixing work that led to the construction of the GenProg tool[1]. More recently, genetic improvement was able to automatically transplant new functionality into existing software[2], which resulted in a ACM SIGSOFT Distinguished Paper Award at ISSTA 2015.

Scope: We invite submissions on any aspect of genetic improvement, including, but not limited to, theoretical results and interesting new applications. Suggested topics include automatic:

- bandwidth minimisation
- latency minimisation
- fitness optimisation
- energy optimisation
- software specialisation
- memory optimisation
- software transplantation
- bug fixing
- multi-objective optimisation
- trading between quality and non-functional properties

Important Dates:
GPEM Special Issue Submission Deadline: 19 December 2015
First Reviews: March 2016
Post Review Submission Deadline: April 2016
Acceptance Notification: June 2016
Camera-ready Paper Deadline: July 2016

Guest Editor:
Justyna Petke, University College London, London; j.petke@ucl.ac.uk

References:
[1] "A Systematic Study of Automated Program Repair: Fixing 55 out of 105 Bugs for $8 Each" (ICSE 2012) by Claire Le Goues, Michael Dewey-Vogt, Stephanie Forrest* and Westley Weimer (University of Virginia, University of New Mexico*)

[2] "Automated Software Transplantation" (ISSTA 2015) by Earl T. Barr, Mark Harman, Yue Jia, Alexandru Marginean and Justyna Petke (University College London)

Paper Submission

Authors are encouraged to submit high-quality, original work that has neither appeared in, nor is under consideration by, other journals.

Springer offers authors, editors and reviewers of ***Genetic Programming and Evolvable Machines*** a web-enabled online manuscript submission and review system. Our online system offers authors the ability to track the review process of their manuscript with straightforward log-in and submission procedures, and it supports a wide range of submission file formats.

Manuscripts should be submitted to:
http://GENP.edmgr.com.

Choose " Genetic Improvement " as the article type when submitting.

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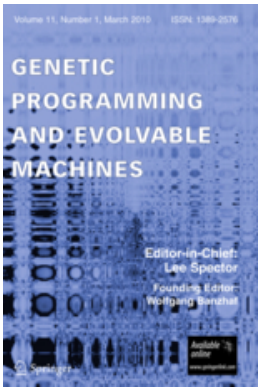

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