

Proceedings

**2019 IEEE/ACM 6th International Workshop
on Genetic Improvement**

— GI 2019 —

**28 May 2019
Montréal, QC, Canada**

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BMS Part Number: CFP19Q22-ART
ISBN-13: 978-1-7281-2268-7

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2019 IEEE/ACM International Workshop on Genetic Improvement (GI) **GI 2019**

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Welcome from the GI 2019 Workshop Chairs

It is our great pleasure to welcome you to the sixth international Genetic Improvement Workshop, GI 2019, held at ICSE 2019 on 28 May 2019 in Montreal, Canada. Since 2015, the GI workshop has been held annually as part of the Genetic and Evolutionary Computation Conference (GECCO). We are very pleased that the workshop will also be held at the International Conference on Software Engineering, for the second time. It's first edition at ICSE 2018 (and 4th workshop edition overall), has shown that there is great interest in the area in the software engineering community.

The goal of the GI workshops remains to bring together research from across the world to exchange ideas about using optimisation techniques, particularly evolutionary computation such as genetic programming, to improve existing software. We invited short two page position papers to encourage the discussion of new ideas and recent work in addition to longer and more concrete research submissions. The call for participation invited GI work on automated bug-fixing; improving functionality; decreasing memory consumption; decreasing energy consumption; and “plastic surgery” transplanting of new functionality. As you will see, half the papers are position papers proposing new ideas and half are full length research papers. Most of the submissions came from the USA but there were also submissions from Europe and Asia.

Putting together GI 2019 was a team effort. Firstly we thank the authors for providing the content of the program. We would like to thank Dr. Nadia Alshahwan for her industry based keynote talk. We are grateful to the program committee who worked very hard in reviewing papers and providing great feedback for authors. Finally, we thank our sponsors: the University of Michigan, and The Engineering and Physical Sciences Research Council (EPSRC) (grant number: EP/P023991/1). Their generosity has helped a number of students to attend.

We hope that you will find these papers thought provoking, and that the workshop will provide you with an opportunity to share ideas with people across the globe. We hope that you will notice many areas of software engineering that are not yet covered. Our primary aim remains to encourage you to participate. Go one step better than the White Queen and instead of thinking of six impossible things, do something everyone else has so far considered to be impossible!

Bill Langdon
Justyna Petke
Shin Hwei Tan
Wes Weimer

GI 2019 Workshop Chairs



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He maintains the geneticimprovementofsoftware.com web page.

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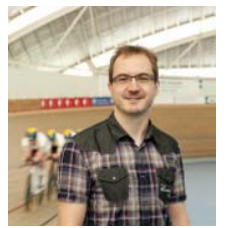
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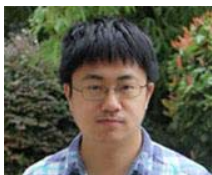
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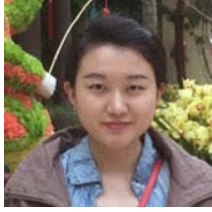
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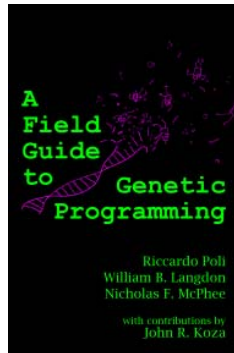
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GI 2019 Invited Keynote Speaker

Nadia Alshahwan



Genetic Improvement Keynote

Nadia Alshahwan is a Software Engineer in testing and verification at Facebook. She is part of the Sapienz automated testing team, who are the first to apply SBSE-based Android testing and automated bug fixing at a large industrial scale. Her main interests are automated test generation and automated oracles. Nadia received a PhD from UCL in web application testing. She has also worked as a researcher in security and model-based testing. Before joining Facebook, she was an information architect at JP Morgan.