Welcome from the GI 2018 Chairs

It is our great pleasure to welcome you to the 4th International Genetic Improvement Workshop (GI 2018), held at ICSE 2018 on 2 June 2018 in Gothenburg, Sweden. Since 2015, the GI workshop has been held annually as part of the Genetic and Evolutionary Computation Conference (GECCO). Indeed, while a GI workshop will also be held at GECCO 2018 in Japan, we are very pleased that the 40th International Conference on Software Engineering (ICSE 2018) agreed to host the fourth international GI workshop. GI 2018 will be the first Genetic Improvement event to be co-located with a major software engineering conference.

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, we have accepted papers in most of these areas as well as papers on emergent systems, security, adopting genetic improvement into continuous development and theoretical and landscape studies. We had submissions from Europe, America and Asia. They were exactly evenly split between full-length submissions (5) and two page position papers (5).

Putting together GI 2018 was a team effort. Firstly we thank the authors for providing the content of the program. We would like to thank Claire Le Goues for giving a keynote talk. We are grateful to the program committee who worked very hard in reviewing papers and providing feedback for authors. Finally, we thank our sponsors: GrammaTech and the University of Michigan, and The Engineering and Physical Sciences Research Council (EPSRC) and profits from the book "A Field Guide to Genetic Programming" by Riccardo Poli, William B. Langdon and Nicholas Freitag McPhee.

We hope that you will find these papers thought provoking, and that the workshop will give an opportunity to share ideas with other researchers from institutions around the world. As with the first workshop, we expect that you will notice many areas of software engineering that are not covered. Our primary aim remains to encourage you to participate. We hope for many questions along the lines of, "Can GI do X?" to which the reply may be: please try! Go one step better than Lewis Carroll's White Queen in "Through the Looking-Glass, and What Alice Found There" and do something everyone else considered to be impossible!

Sincerely,
Bill, Justyna, Katie, and Wes
GI 2018 Workshop Chairs