Special Session Proposal for NaBIC 2015

Title:
Computational Swarm Intelligence

Aims and Scope
Computational swarm intelligence is based on the behaviour of colonies and swarms in nature, where individuals of a colony or swarm benefit from the collective behaviour of the whole colony or swarm. This special session aims to provide a platform for people from both academia and industry to share and exchange their knowledge on computational swarm intelligence.

This special session welcomes original and unpublished contributions on all aspects of computational swarm intelligence, including (but not limited to):

- Algorithms such as ant colony optimisation, bees, particle swarm optimisation, fireworks, fireflies, leaping frog, swarm robotics, etc.
- Modelling and analysis of new computational swarm intelligence algorithms
- Hybrid schemes with other algorithms
- Theoretical aspects of computational swarm intelligence algorithms
- New benchmarks and performance measures to evaluate computational swarm intelligence algorithms
- Applications to both constrained and unconstrained optimisation
- Applications to single-objective, multi-objective and many-objective optimisation
- Applications to both static and dynamic problems
- Applications to real-world optimisation problems

Organisers

Dr Mardé Helbig
Computer Science Department
University of Pretoria
Pretoria, South Africa
Email: mhelbig@cs.up.ac.za

Ms Anna Rakitianskaia
Computer Science Department
University of Pretoria
Pretoria, South Africa
Email: annar@cs.up.ac.za

Short Bio of Organisers

Dr Mardé Helbig is a senior lecturer at the Computer Science Department of the University of Pretoria, South Africa. She received her PhD degree in Computer Science from the University of Pretoria in 2012. She is the chair of the South African Chapter of the IEEE Computational Intelligence Society (IEEE CIS) , the vice-chair of the Task Force on Evolutionary Multi-objective optimisation (TF-EMO) at IEEE CIS and a member of the sub-committee of the IEEE Woman in Computational Intelligence. Her research interests include static and dynamic multi-objective (and many-objective) optimisation, evolutionary multi-objective algorithms, computational intelligence algorithms and applying these algorithms to solve real-world problems.

Ms Anna Rakitianskaia received the Masters degree in Computer Science in 2012. She is a lecturer

of Computer Science at the University of Pretoria. She is also pursuing a PhD degree in Computer Science, and her current research interests lie in neural networks, swarm intelligence, dynamic environments, time-series analysis, high-dimensional optimisation, and deep learning. She is especially interested in applying particle swarm optimisation to neural networks, as well as applying computational intelligence methods in real-life scenarios. Ms Rakitianskaia has published many papers in the field, and has also been invited to review both conference and journal papers since 2008. She is a student member of the IEEE and CIS.