



CFP: IEEE CEC – Special Session on Mathematical and Algorithmic Frameworks for Simulation of Swarm Intelligence

2018 IEEE WCCI,
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Please share this CFP with as many people as possible – Thank you.

Swarm intelligence (SI) is the collective behavior of decentralized, self-organized systems, natural or artificial. In SI, an individual has a simple structure and its function is single. These systems composed by many individuals show the phenomenon of emergence and address several difficult and complex real world problems that are impossible to be solved by only an individual. During the recent decades, SI methods have been successfully applied to cope with complex and time-consuming problems that are hard to be solved by traditional mathematical methods. SI is a topic of interest among researchers in various fields of science and engineering. Several popular SI paradigms, including ant colony optimization, and particle swarm optimization, have been successfully applied to handle various practical engineering problems.

A common framework is desirable for a number of reasons, including the following: Deep understanding of the learning algorithms employed for different tasks of data mining and optimization in Computational Swarm Intelligence techniques. Discovering the relationships between parameter values and the interactions between parts of the analyzed approaches in the context of optimization. Exploitation of swarm and collective approaches in practical problems.

We encourage submission of papers describing new concepts and strategies, and systems and tools providing practical implementations, including hardware and software aspects. In addition, we are looking for **mathematical and algorithmic frameworks which will enable us to understand and analyze these algorithms and the self-adaptive mechanisms and learning aspects**.

You are invited to submit papers that are unpublished original work for this special IEEE session.

The **topics** are, but not limited to, the following

- Mathematical and algorithmic frameworks for simulation of Swarm Intelligence (e.g. Ant Colony Optimization, Particle Swarm Optimization, Multi-agent systems).
- Simulation of collective behavior using Swarm Robots (e.g. Kilobot).

Important Dates:

- **Paper Submission Deadline: January 15, 2018**
- Paper Acceptance Notification Date: March 15, 2018
- Final Paper Submission & Early Registration Deadline: May 1st, 2018
- IEEE WCCI 2018: July 08-13, 2018

Special Session Organizer:



Dr. Carsten Mueller holds a M.Sc. degree from the University of Liechtenstein in Vaduz and a Ph.D. degree from the University of Economics (Department Informatics and Statistics) in Prague. His research interests are Component-based Software Engineering and Software Architecture Optimization using Swarm Intelligence. He works as an independent senior consultant in the areas of Software Architecture and Process Optimization for more than 15 years. He is a senior lecturer for Software Engineering and algorithms at the Baden-Wuerttemberg Cooperative State University in the Department of Applied Informatics in Mosbach, Germany. He is Head of Swarm Lab and leads the research group for Swarm Intelligence (research@ieoca.org).