

2018 IEEE Symposium on Immune Computation

(IEEE IComputation 2018)

I. NAME AND ABBREVIATION

Name: 2018 IEEE Symposium on Immune Computation

Abbreviation: IEEE IComputation 2018

II. DESCRIPTION

The 2018 IEEE Symposium on Immune Computation (IEEE IComputation 2018) is a part of the IEEE Symposium Series of Computational Intelligence (IEEE SSCI 2018).

Immune Computation is a fast developing research area in the computational intelligence community, inspired by the information processing mechanism of biological immune system. Many of these algorithms are built on solid theoretical foundations, through understanding mathematical models and computational simulation of aspects of the immune system. The scope of this research area ranges from modeling to simulation of the immune system, to the development of novel engineering solutions to complex problems, and bridges several disciplines to provide new insights into immunology, computer science, mathematics and engineering.

The aims of this symposium are: (1) to present the state-of-the-art research on immune computation; (2) to provide a forum to disseminate their recent advances and views on future perspectives in the field; (3) to offer new conceptual models for understanding the dynamics that underlie the immune system, and (4) to provide a unique event where computer scientists, engineers, immunologists, biologists, physicists, etc., may compare to each other their expertises in an interdisciplinary vision.

III. TOPICS

The topics of IEEE IComputation 2018 include two aspects. First, contributions on immune algorithms and applications are very welcome. Second, contributions on modeling biological immune systems are also welcome, but potential uses for developing computationally intelligent systems should be clearly stated. Topics of interest include, but are not limited to:

Immune algorithms and applications:

- Immune-based security techniques
- Immune-based privacy protection schemes
- Negative/positive selection algorithms
- Clonal selection algorithms
- Immune network algorithms
- Dendritic cell algorithms
- Negative databases and applications
- Negative surveys and applications
- Theoretical aspects of immune inspired algorithms
- Immune algorithms for optimization
- Immune algorithms for pattern recognition

- Immune algorithms for robotics and control
- Immune algorithms for fault diagnosis
- Immune-based data mining techniques
- Novel algorithms and new immune operators
- Benchmarking immune inspired algorithms against other techniques
- Empirical and theoretical investigations into performance and complexity of immune inspired algorithms
- Hybridization of immune inspired algorithms with other techniques

Modeling of biological immune system:

- Modeling of immune learning and memory
- Modeling of immune system response
- Modeling of immune cells and antibodies
- Modeling of viruses or cancers
- Immune network models
- Self/nonself models
- Systems & synthetic immunology
- Cellular immunology
- Vaccine design
- Immune medicine
- Chemistry immunology
- Multi-agent based models of immunity
- Security modeling of biological immune system
- Computer simulations of biological immune system

IV. SYMPOSIUM CHAIRS

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