

ARTIFICIAL IMMUNE SYSTEMS: ALGORITHMS, SIMULATION, MODELLING & THEORY

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The Immune System protects organisms against diseases, and over the years has been an important source of inspiration for the development of algorithms to be applied in a wide range of applications, such as learning, pattern recognition, optimisation and classification. 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 modelling 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.

This special session aims to focus on the recent advances on Artificial Immune Systems (AIS) field, also offering new conceptual models for understanding the dynamics that underlie the immune system.

Topics

- Computational & Mathematical modelling of the Immune System
- Theoretical aspects of immune inspired algorithms
- 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
- Hybridisation of immune inspired algorithms with other techniques
- Systems & Synthetic Immunology