Every since their inception to the academic community, cellular automata (CAs) have been intimately linked with nature-related forms of computation. From their original motivation as abstract models of biological reproduction, to the recent evidences for using evolutionary computation techniques to search for CA rules with a predefined behaviour, many facets of this interplay have been brought forward over time. Having developed further afield, CAs became models themselves of various complex systems, as well as discrete mathematical objects that possess a very intricate nature. Exploring a small window of this panorama is what the present special issue is about.

As such, cellular automata are discussed herein as models of natural biological processes, of implementations of artificial life settings, as applications of real-world themes, and as subject of rigorous analytical effort. This is the list of papers comprising the issue:

- **Youssef and Tang** report on a CA-based model for the growth of 3D multicellular tissues, simulating the tissue growth rates and population dynamics of multiple populations of cells.
- **Wakita, Iguchi, Shimizu, Tamaki and Kita** address the effectiveness of a CA-based model for leveraging a problem in traffic control, in which vehicles on the main road are forced to reduce their velocity, in order to avoid slow merging vehicles from the branch road.
- **Suzuki and Ikegami** perform an artificial-life type study on the emergence of a dynamic control over the Game of Life rule, when it operates in coupling with another CA, whose rule has been designed through a genetic algorithm with that aim.
- **Olsen, Harrington and Siegelmann** discuss an artificial-life oriented application in population dynamics, in which a CA that simulates the interactions of competing populations, in a predator-prey like setting, is added emotionally-inspired rules.
- **Tošić** provides a theoretical account on CAs as distributed computational systems, as they bear relevance to large-scale multi-agent systems.
- **Fukš and Skelton** exemplify how to perform the rigorous calculation of how the density of 1s in an arbitrary initial configuration of a given CA changes through time; even though the method is probably not applicable to an arbitrary rule, it certainly applies to many others.

These papers have been selected from the contributions submitted in response to an open, international call-for-papers. Each submission received two or three written reviews, prepared by scholars drawn from the following international ad-hoc committee, composed of 22 researchers, from 11 countries:
At the end of the reviewing process, six submissions were accepted, coincidently with equal distribution among Japan, Canada and the USA. Congratulations to their authors!

And many thanks to all the reviewers, who provided us with their timely and most valued reports!

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