

MESSAGES



Hiroshi Tanaka

General Chair

Professor, Tokyo Medical and Dental University

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It is my great pleasure and honor to welcome you all to the Twenty-first International Symposium on Artificial Life and Robotics (AROB 21st 2016). This year AROB Symposium has a new trial to organize a sister symposium on bio-complex systems study, named "1st International Symposium on BioComplexity, (ISBC1)".

AROB Symposium has been so far accepting the presentations on biomedical informatics, as we have broadened the definition of Artificial Life to the fields of complex systems dealing with anything related to life. But, strictly speaking, a complex systems study on real disease may not be considered as the field of Artificial Life, so that this year we separated the studies on real life such as those with real clinical cases from the main part of AROB symposium and prepared another parallel symposium ISBC which would be concentrated on informatics and systems analysis in the real life field.

In organizing this year AROB symposium, we are in debt to many Japanese academic associations such as SICE, RSJ, IEEEJ, IEICE, ISCIE and JSOM. I would like to express my sincere thanks to all of those who make this symposium possible.

As is needless to say, Alife together with bio-complex systems study or biologically-inspired Robotics approach now attracts wide interests as a new paradigm of science and engineering. For example, the bio-complex systems methodology is now increasing its importance as a theoretical dynamical systems approach in "cutting-edge medicine", such as to clarify the cancer progression mechanism or to explore the efficient reprogramming method of cells/tissues in regeneration medicine (iPS cells). Furthermore, study of "synthetic biology" is now developed in the attempt to synthesize life in wetware or re-design existing, natural biological systems (bacteria) for useful purposes.

Also in the biologically-inspired robotics field, rapid progresses in various types of robot systems have been remarkable such as bipedal humanoid, multi-agent robots. Also in real world, nursing care robot is gradually being in practice. Furthermore, in wider sense, "molecular robots", small DNA-based platform which identify receptors in cell surface and target the cells causing diseases is expected to achieve drug-like function within human body.

These examples show the Alife and biologically-inspired Robotics approach are exerting a wide influence on the development of a new paradigm for next generation of science and engineering. We hope this symposium becomes a forum for exchange of the ideas of the attendants from various fields, who are interested in the future possibility of Alife and biologically-inspired Robotics approach. I am looking forward to meeting you in Beppu, Oita.



Hee-hyol Lee

Program Chair

Professor, Waseda University

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On behalf of the program committee, it is my great pleasure and honor to invite all of you to the 21st International Symposium on Artificial Life and Robotics (AROB 21st 2016). Last year, we commemorated the 20th Anniversary AROB, and then, this year, we are spreading new fusion of artificial life, robotics, bioscience, and complexity, that is, the beginning of the First International Symposium on Bio-Complexity (ISBC 1st 2016).

The bioscience composes the fields of science that includes the scientific study of living organisms - such as microorganisms, plants, animals, and human beings. On the other hand, a complex system can be also viewed as a system composed on many components, which may interact with each other. In many cases, it is useful to represent such a system as a network where the nodes represent the components and the links their interactions, for examples, the human brain, social organization, an ecosystem, and a living cell.

These AROB 21st and ISBC 1st 2016 consist of two plenary speeches, 22 organizing sessions, 14 general sessions, one poster session, and then 210 papers are published. These symposiums are being supported by a host of researchers and engineers. I would like to take this time to thank you for all researchers and engineers.

The brilliant papers presented in these symposiums are able to submit to the international journal - AROB. All papers submitted to the journal go through a peer-review process. In addition, the quality of our journal depends heavily on support from referees. Thanks once again for all of referees of our journal.

We are wishing continued outstanding success of our symposiums.

I am going to look forward to my meeting with all of you again.