

MESSAGES



Hiroshi Tanaka

General Chair

**Professor Emeritus, Tokyo Medical and Dental University
Specially appointed professor, Tohoku University**

A handwritten signature in black ink that reads "Hiroshi Tanaka".

It is my great pleasure and honor to welcome you all to the Twenty-second International Symposium on Artificial Life and Robotics (AROB 22nd 2017). This year we have also organized a sister symposium on bio-complex systems study, named “The Second International Symposium on BioComplexity, (ISBC2)”. By organizing the joint symposium of AROB and ISBC, we could broaden the scope of this symposium to cover the fields of complex systems dealing with anything, related to and inspired by life.

As is needless to say, Alife together with bio-complex systems and biologically-inspired Robotics now attracts wide interests as a new paradigm of science and engineering. For example, the bio-complex systems theory and methodology is now increasing its importance in entering upon the healthcare “Big Data Era”, as a promising approach to promote “cutting-edge medicine”, such as to reveal and conquer 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 the real world, nursing care robot is gradually being in practice. Furthermore, in wider sense, “molecular robots”, small DNA-based device which identifies receptors in cell surface and targets 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

In recent years, especially Artificial Intelligence (AI) has attracted an enthusiastic interest again from all branches of society, due to the extraordinary capability of “Deep Learning”, from the very high performance of image understanding to the splendid competence of playing complex game like GO to win the world champion. In our fields of AROB, the impact of AI is outstanding and would revolute the total landscape of our discipline. These trends could be seen already in this year’s symposium

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.

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, biocomplexity and biologically-inspired Robotics approach. I am looking forward to meeting you in Beppu, Oita.



Hee-hyol Lee

Program Chair

Professor, Waseda University

A handwritten signature in black ink that reads "Hee-hyol Lee". The signature is written in a cursive, flowing style.

On behalf of the program committee, it is my great pleasure and honor to invite all of you to the 22nd International Symposium on Artificial Life and Robotics (ISAROB 22nd 2017) and the Second International Symposium on Bio-Complexity (ISBC 2nd 2017). The ISAROB was started in 1996 at B-Con Plaza, Beppu, Japan, to develop new frontier of artificial life, robotics, complexity, medicine, and their related fields. The ISBC was started last year to find new science and technologies concerning biomedicine and biophysics based on theories, computer simulations, wetware's, and hardware designs.

These ISAROB 22nd and ISBC 2nd 2017 consist of two plenary speeches, 18 organizing sessions, 20 general sessions, one poster session, and then 200 papers are published. These symposiums are being supported by hosts of researchers and engineers. I would like to take this time to thank you for all researchers and engineers.

With the expansion of humanlike robots, there are many benefits to this robot's development, but the robot's development is related to rights of people, which means it can be very harmful if it is applied to people's lives without understanding the potential issues that may arise from the technology. The main ethical concern is the potential for conflict between the rights of people and responsibilities of scientists and engineers: that is "Roboethics." In other words, an action of robots is considered good or bad based on whether it increases or decreases the total happiness of the affected people, and right or wrong whether it benefits the community. The robotics applications as a new technology must be accepted by society. We will set up a forum for the discussion in our conference.

We are wishing continued outstanding success of our symposiums.

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