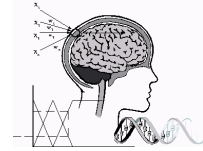# *International*

Innovation in Knowledge Based and Intelligent Engineering Systems

INVITED SESSION SUMMARY

Title of Session: Immunity-Based Systems: Resilient Computing for IoT

Name, Title and Affiliation of Chair:
Prof. Dr. Yoshiteru Ishida, Toyohashi University of Technology
Associate Prof. Dr. Takeshi Okamoto (Kanagawa Institute of Technology, Japan)
Associate Prof. Dr. Yuji Watanabe (Nagoya City University, Japan)

Details of Session (including aim and scope):

Immunity-based Systems (or Artificial Immune Systems) have been attracting a broad attention as an alternative avenue to build intelligent and life-like systems. Systems based on and inspired from the immune system indicate not only tolerant to noise by autonomous and distributed agents, but adaptive to dynamically changing environment. As a specific topic, we also focus on the application to resilient computing that can reduce or prevent damages in disaster situation, and the systems that utilize IoT and/or big data. Further, Science and Engineering related to collective intelligence such as formation robots and satellites are also called for .

This session calls for papers related to Immuno-engineering, Immuno-computing and Immuno-informatics. Specific topics of interest include but not limited to:

- Immunity-based systems that utilize IoT and/or big data

- Immuno-design
  e.g. Designing Resilient Systems, Matching Based Design

- Immuno-modeling
  e.g. Game theoretic approach, Cellular Automata, Asymmetric Interaction

- Immuno-engineering
  e.g. Signal profiling, Sensor Systems, Applications to the Environmental Problems, Robust and adaptive design; Self-diagnosis, self-maintenance and self-organization; Security of information network

- Immuno Intelligence, Bio Intelligence and other Natural Intelligence
  e.g. Artificial Intelligence and Natural Intelligence; Specific feature of Immuno Intelligence; Comparison of Immuno Intelligence to other Natural Intelligences; Bio Intelligence and Physical Intelligence; Degeneracy in Bio Intelligence and Physical Intelligence

- Immuno-informatics
  e.g. Analysis and simulation of the immune system as a Complex System; Application to monitoring the immune system; Application to medication

- Immuno-computing
  e.g. Computational approach to the Immunity-Based Systems; Learning and adaptive algorithms; Artificial Life; Multi-agent systems

- Disaster reduction, risk management and environment monitoring by Immunity-based Systems

Main Contributing Researchers / Research Centres (tentative, if known at this stage):
Prof. Dr. Yoshiteru Ishida (TUT, Japan)
Associate Prof. Dr. Takeshi Okamoto (KAIT, Japan)

Website URL of Call for Papers (if any):
TBA

Email & Contact Details:
ishida@sys.cs.tut.ac.jp