INVITED SESSION SUMMARY

Title of Session:
Innovative Technologies and Applications in Computer Intelligence

Name, Title and Affiliation of Chair:
Takumi Ichimura, Prefectural University of Hiroshima,
Keiichi Tamura, Hiroshima City University,
Kamada Shin, Prefectural University of Hiroshima

Details of Session (including aim and scope):

Computational Intelligence technologies have made great progress in recent decades. Real world environments produce large-scale, high-dimensional, multi-modal, and ambiguous data including adversarial examples. Since many real world problems are not considered to be well-posed mathematically, attempts of analytic approaches to find solutions met some difficulties. For dealing with such complex data to apply the process for Making Decisions, various techniques are required such as visualization by clustering of multi-modal data and automatic feature extraction by representation learning, acquisition of comprehensible knowledge from learning results and so on. Driven by such motivation, innovative computational intelligence approaches have been proposed in the soft-computing areas like artificial neural networks, evolutionary computation and fuzzy theories, and many of these innovative technologies are now becoming popular in the field of computer science such as pattern recognition, combinatorial optimization problems etc. The advanced technology of the recent successes is Deep Learning, with the advancement of computer hardware providing high performance computing. According to the brisk activities, many researchers also have been able to challenge solving industrial problems such as the control system of industrial robots, analysis of medical database, attack and defence of adversarial examples, etc. We discuss in this session the computational intelligence technologies for learning real world complex data, which will make an explicit or implicit knowledge to the real world problems that prior technologies cannot provide satisfactory solutions. This session scopes not only theory and methodology but also various industrial applications as follows: * Deep Learning, * Neural Networks, * Evolutionary Computation, * Fuzzy Theory, * Swarm Intelligence, * Artificial Immune System, * Reinforcement Learning, * Other Softcomputing Methodologies, * Big Data Technology, * Image Processing, * Intelligent learning of Control System, * Computer Education and E-learning, * Medical Informatics, * Other Industrial Applications

Main Contributing Researchers / Research Centres (tentative, if known at this stage):

Takumi Ichimura, Keiichi Tamura, Shin Kamada,
Akira Hara, Jun-ichi Kushida, Tatsuhiro Sakai, Takashi Hasuike, Ken J. Mackin,
Tatsuhiro Hasegawa, Kosuke Kato

Website URL of Call for Papers (if any):
(tentative URL)
https://deeplearning.pu-hiroshima.ac.jp/KESIDT2021/

Email & Contact Details:

E-mail: ichimura@pu-hiroshima.ac.jp
Prof. Takumi Ichimura,
Director of Advanced Artificial Intelligence Research Center,
Director of Research Organization of Regional Oriented Studies,
Prefectural University of Hiroshima
1-1-71, Ujina-Higashi, Minami-ku, Hiroshima 731-8558, Japan
Phone: +81-82-251-9571, Fax: +81-82-251-9405