

5th International summit on

MEDICAL BIOLOGY & BIOENGINEERING

&

8th International Conference & Exhibition on

BIOSENSORS AND BIOELECTRONICS

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From bioengineering and cognitive engineering to brain inspired systems

The ultimate universe of discourse of the natural world can be perceived as a parallel dual encompassing the concrete and abstract worlds. The former is studied at the chemical, physical, biological, physiological, brain, and sociological layers. However, the latter is studied at data, information, knowledge and intelligence layers underpinned by mathematics as the general abstract science. *Bioengineering* is a trans-biological-and-engineering filed that solves organic, life, body and brain problems as well as medical, agricultural and socioeconomical applications at the molecular, gene and neural levels. *Cognitive engineering* is an adjacent layer beyond bioengineering that study cognitive and brain-inspired systems based on cognitive and intelligence sciences. Both biological and cognitive engineering leads to brain-inspired systems and AI applications which are bioengineered and cognitively implemented mimicking the brain and the natural intelligence. Latest basic studies reveal that novel solutions to fundamental AI problems are deeply rooted in both the understanding of the natural intelligence and its biological and cognitive mechanisms. Theoretical and methodological breakthroughs in biological and cognitive engineering enable a wide range of novel applications in life science and AI. This keynote lecture will present some of the recent bioengineered and cognitive engineered systems such as cognitive sensors, cognitive neural networks, cognitive robots, brain-inspired systems, cognitive learning engines, cognitive knowledge bases, and applied cognitive systems.

Biography

Yingxu Wang is a Professor of Cognitive Informatics, Brain Science, Software Science, and Denotational Mathematics. He is President of International Institute of Cognitive Informatics and Cognitive Computing. He is a Fellow of ICIC, a Fellow of WIF (UK), a P.Eng of Canada, and a Senior Member of IEEE and ACM. He received a PhD in Computer Science from the Nottingham Trent University in 1998 and has been a full Professor since 1994. He is the Founder and Steering Committee Chair of the annual IEEE International Conference on Cognitive Informatics and Cognitive Computing (ICCI*CC) since 2002.

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