Medical Information Technology Toward Automated Clinical Practice Capsule

**ABSTRACT**

Currently, a lot of medical and health care studies are done in the world. Especially, many companies focus digital health care system on cloud computing. On the other side, pure medical issues are also very active in the world. Especially, Japanese government promotes this trend to accelerate economic recovery.

In this talk, I will describe automated medical practice capsule in near future. Information Technology drives this realization. This capsule consists of health care system, automated medical examination system, automated medical diagnosis system, automated clinical practice system. In addition, we will require an automated function recovery system. Almost all medical engineering studies would be an element of it. In them, most difficult task would be a decision making component in the diagnosis system. This component must make a decision whether the patient should receive medical treatment or not. This decides, what we call, 5W1H, “when” should the user receive medical treatment? “what” organ or function is the target? “why” does the user need it? “where” is the best part to do this, “how” does it treat? and “who” corresponds to which is best among robot treatment, drug, or outside of capsule. In it, normality plays a primary role in the decision process. I will introduce several research in my laboratory.

**BIOGRAPHY**

Yutaka Hata is a Professor in the Graduate School of Simulation Studies, University of Hyogo, Japan. He received the B.E. degree (Electronics) in 1984, the M.E. degree (Electrical Engineering and Electronics) in 1986 and the Ph.D. (Doctor of Engineering) in 1989 all from Himeji Institute of Technology, Japan. He is currently a Professor in the Graduate School of Simulation Studies, University of Hyogo, Japan. He is also a Guest Professor in World Premier International Research Center, Immunology Frontier Research Center, Osaka University, Japan. He spent one year in BISC Group, University of California at Berkeley from 1995 to 1996 as a visiting scholar. His research interests are in medical and health care system, such as medical imaging, image processing, health monitoring, fuzzy normality and Immune system. He received 14 international awards such as the Franklin V. Taylor Best Paper Award (IEEE SMC 2009), World Automation Congress Lifetime Achievement Award (2008), Biomedical Wellness Award (SPIE Defense, Security, and Sensing 2010). He is an editor of IEEE Trans on SMC-Systems. He is an IEEE Fellow.

All are welcome!