



**Wednesday, July 18<sup>th</sup>, 2012, 4:00 P.M.**  
**Room No. 109, DASAN bldg. 1<sup>st</sup> Floor**  
*(Host: Prof. Euiheon Chung / Language: English)*

## **Acoustic Non-invasive Neuromodulation for Human-Machine-Interaction**

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Non-invasive and controllable modulation of regional brain activity may open new avenues for various clinical applications ranging from functional brain mapping to the treatment of neurological and psychiatric disorders. Recent *in vivo* studies indicate that the application of image-guided focused ultrasound (FUS), when administered at a low acoustic intensity as a train of pulses, reversibly modulates (decreases or increases) the excitability of regional brain tissue. We demonstrate that FUS sonication of visual and sensorimotor area of the animal (rats and rabbits) brain elicits distinct physiological/behavioral changes. The potential medical applications as well as its utility for the human-machine-interactions will be discussed in the context of brain-to-brain-interface (BBI).

### **Biosketch**

Dr. Seung-Schik Yoo is an Associate Professor of Radiology at Brigham and Women's Hospital and Harvard Medical School. He is also affiliated with KIST, UNIST, and KAIST as visiting or adjunctive faculty member. After his graduation from the Johns Hopkins University, majoring in Biomedical Engineering, he continued his graduate work at Harvard MIT, Division of Health Science and Technology (PhD) and pursued a business degree (MBA) from University of Massachusetts. Later, he joined the faculty at Harvard Medical School in 2003. Dr. Yoo is involved with international research collaborative network on focused ultrasound and neuromodulation trials, and serves as an Editor-in-Chief of the International Journal of Imaging Systems and Technology.