

**When:** Friday 15:00 – 16:00, September 13, 2019

**Where:** ETB 1035

**Speakers:** **Woo Seok Kim and Minyu Gu**

Ph.D. Students in Prof. Sung Il Park's Group  
Department of Electrical and Computer Engineering  
Texas A&M University

**Title:** **A Fully Implantable, Closed-loop Wireless Recording and Stimulation System for the Treatment of Obesity**

**Abstract:** Obesity has stimulated research of neural circuits regulating energy balance, and technological advances have allowed for the dissection of genetically-defined brain circuits regarding controlling feeding behavior and physiology. However, little is known the neural transmission of primary sensory signals related to satiation, and research in this area is imperative for understanding the central organization and regulation of energy homeostasis. The goal of this study is to identify a signaling pathway that controls food intake to treat obesity and when the vagus nerve relays satiety signals from the gut. Wireless telemetry includes a miniaturized implantable receiver, wireless power transmission coils, and a smartphone. We will implant a receiver in the abdomen cavity of a mouse and the device directly interfaces with nodose ganglions for recording and vagus nerve endings in the stomach for stimulation.

**Bio:**



Woo Seok Kim received Bachelor of Science in Computer Science and Master of Science in Electrical and Electronic Engineering from Korea University, South Korea, in 2011 and 2013, respectively. He is currently pursuing a Ph.D. at Texas A&M University, College Station, TX, USA since 2015. From 2013 to 2015, he was a software engineer at Research and Development Center, KT (Korea Telecom) Inc., Seoul, S. Korea. His current research interests include bioelectronics system development and advanced algorithm to reconstruct and classify the neural signals.



Minyu Gu is a Ph.D. student in the Department of Electrical and Computer Engineering at Texas A&M University. He conducted research on RF electronics and coil design for Nuclear Magnetic Imaging. He is now working on the development of an advanced UHF battery-free wireless recording device and antenna design.