

Oral S16

新創技術

Date/Time

8/4 (四) 16:00-17:00

Chair(s)

黃元豪教授 / 國立清華大學電機工程學系

S16.1 16:00 – 16:15

Intelligent Implantable Neuromodulation Medical Device

Chin-Fong Chiu

A-Neuron Electronic Corporation

In recent decades, mixed-signal IC technology has been widely used in implantable medical devices for intelligent diagnosis and treatment. Such medical ICs provide the functions of sensing and stimulation with integrated memory storage, wireless communications and power management to achieve implantable medical application with small form factor and ultra low power. A-Neuron was established in 2016 and realizes the electronic medical products to treat nerve damage, disorders and diseases that cannot be cured by current medicine. Current developed intelligent neuromodulation medical devices are used in neurological diseases, including refractory epilepsy and retinal degenerative diseases. It also cooperated with BETRC (Biomedical Electronics Translational Research Center, NYCU) to develop a closed-loop deep brain stimulation system to treat patients with Parkinson's disease.

S16.2 16:15 – 16:30

Hardware Accelerator Design Challenges for AI Computing in Data Centers

Juinn-Dar Huang

Neuchips Inc.

This short talk presents design challenges engineers are facing during the implementation of state-of-the-art accelerators optimized for various AI computing applications in data centers. Hardware engineers have to meet a set of tough timing and power constraints while integrating hundreds of thousands processing elements, memory blocks, and other functional units together on a die in 7nm and beyond. Software engineers are required to build a sophisticated compilation flow that translates various high-level AI models into low-level hardware instructions that fully exploit the hardware computing resources to maximize the performance. System engineers carefully deal with a bunch of critical system-level issues such as board-level signal integrity, voltage domain and power management, cooling and thermal control so that those add-on accelerator cards can operate properly as expected within a computing server in data centers.

S16.3 🕒 **16:30 – 16:45**

See the Wonders: Micro Eye Tracking Technology on Edge Devices for the Metaverse

Shao-Yi Chien

Ganzin Technology, Inc. (Graduate Institute of Electronics Engineering, National Taiwan University)

Eye tracking is viewed as one of the enabling technologies for AR/VR/smart-glasses, which are the edge devices for the Metaverse. Ganzin Technology, a start-up spun-off from National Taiwan University, focuses on creating the next generation eye tracking modules. Based on the in-house AI eye tracking algorithm, IC design, and hardware-software-integration capabilities, Ganzin's Aurora eye tracking technology is the most easy-to-install solution on the market. Our vision is to unlock the potential of the eye as a seamless interface into the extended reality world. In this talk, we will explain why eye tracking is crucial in the edge devices of the Metaverse and show the breakthrough that Ganzin has achieved.

S16.4 🕒 **16:45 – 17:00**

RF/ASIC ICs in B5G/6G SatCom Equipment and Phased Array Radars

Yu-Jiu Wang

Tron Future Tech

In this talk, we will first overview recent progress of active phased array antennas, and discuss their adoptions in B5G/6G SatCom, and radar market. Then, we will discuss RF/ ASIC IC requirements and usage in such systems. In the last part, we will introduce technological innovations by Tron Future Tech in both markets.