



九州工業大学

ディペンダブル集積システム研究センター (DISC)

特別講演のご案内

日時: 令和元年 5 月 10 日 (金) 14:40~17:50

会場: 九州工業大学 飯塚キャンパス (福岡県飯塚市川津 680-4) 1302 講義室

講師: Prof. Shi-Yu Huang


国立清華大学 (台湾)

講演題目: **Health Condition Monitoring for IoT Devices
- Circuits and Methodologies -**

Internet of Things (IoT) devices have found their ways into various applications in smart homes, offices, automobiles, factories, and cities. These new types of devices not only demand new design and manufacturing methodologies, but also bring numerous challenges from the general testing point of view - such as zero-defect quality, high reliability, and long lifetime, etc. To satisfy all these objectives, not only the offline test methods are needed, but also the online monitoring schemes, so that the health condition of an IoT device can be monitored continually throughout its lifetime. By doing so, a run-time failure threat can be detected, diagnosed, and then averted just-in-time via some reconfiguration or replacement procedure to minimize the chance of sudden collapse. In this talk, we will present the **circuit techniques and monitoring methodologies that enable the health conditions monitoring of some home-made test chips**. We will demonstrate how the working temperature, worst-case supply voltage glitch, and aging condition of an IoT device in the field can be monitored from the cloud, by riding the free wireless communication function provided by the device itself.

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講師プロフィール

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Dr. Shi-Yu Huang received his B.S. and M.S. degrees in Electrical Engineering from National Taiwan University in 1988 and 1992, respectively, and his Ph.D. degree in Electrical and Computer Engineering from University of California, Santa Barbara, in 1997. He joined the faculty of the Electrical Engineering Department, National Tsing Hua University, Taiwan, in 1999. He has published more than 150 refereed technical papers, and ever co-founded a company in 2007-2012, TinnoTek Inc., specializing a cell-based PLL compiler and system-level power estimation tools. He received the Best-Presentation or Best-Paper Awards five times from IEEE technical meetings (VLSI-DAT' 2006, VLSI-DAT' 2013, ATS' 2014, WRTLIT' 2017, ISOC' 2018, respectively). Dr. Huang has actively served in the IEEE test community, as Program/General Chair/Co-Chair for a number of IEEE technical conferences, symposia, or workshops (ATS 2004 and 2009, MTDT 2005 and 2006, VLSI-DAT 2014 and 2015, ITC-Asia 2017). From 2015 to 2018, he served as an Associate Editor for IEEE Trans. on Computers.