Low Power, Low Noise Analog-Front-End for Biomedical Signal Acquisition

Prof. Milin ZHANG - Tsinghua University

Date: June 23, 2023
Time: 11:00 AM - 13:00 AM
Live Venue: Aula IC, Edificio 13, Cittadella Universitaria, Catania
Online: https://teams.microsoft.com/l/meetup-join/19

About the Seminar

Low noise amplifier is one of the most significant modules in the design of a bio-signal sensor interface. An AFE features input-referred noise (IRN) as low as to μV level is required to fit the requirement of a high precision acquisition. In addition, the performance of low-power consumption is also expected to extend the battery life, as well as to reduce self-heating of the implanted device for safety. This seminar will focus on the design of a low-noise, low total harmonic distortion (THD) chopper amplifier. It will first cover an introduction on different types of the AFEs. The trade-off between the noise and power will be outlined, which is typically quantitatively measured in terms of noise-efficiency factor. System implementation and applications will also be discussed.

Biography

Milin Zhang is an associate professor in the department of Electronic Engineering, Tsinghua University. She received the B.S. and M.S. degrees in electronic engineering from Tsinghua University, Beijing, China, in 2004 and 2006, respectively, and the Ph.D. degree in the Electronic and Computer Engineering Department, Hong Kong University of Science and Technology (HKUST), Hong Kong. After finishing her doctoral studies, she worked as a postdoctoral researcher at the University of Pennsylvania (UPenn). She joined Tsinghua University in 2016. Her research interests include designing of various non-traditional imaging sensors and biomedical sensing circuit, system design and applications. She serves and has served as the TPC member of ISSCC, CASS, CICC, A-SSCC and BioCAS. She is the Chapter chair of the SSCS Beijing chapter. She has received the Best Paper Award of the BioCAS Track of the 2014 International Symposium on Circuits and Systems (ISCAS), the Best Paper Award (1st place) of the 2015 Biomedical Circuits and Systems Conference (BioCAS), the best student paper award (2nd place) of ISCAS 2017.

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