
馬席彬 教授



Hsi-Pin Ma (M'98) received the B.S. and Ph.D. degrees in electrical engineering from the National Taiwan University, Taiwan, in 1995 and 2002. At the summer of 2000, he interned at Siemens Telecommunication Systems Limited, for feasibility study and establishment of a dual-mode base station for WCDMA and cdma2000. Since 2003, he has been with the Department of Electrical Engineering and Institute of Communications Engineering, National Tsing Hua University, Hsinchu, Taiwan, where he is currently as an Associate Professor.

Dr. Ma's research interests include biomedical electronics and signal processing, telemedicine, wearable and implantable technologies, and health informatics. For communications, he continues to focus on the system design, signal processing, and SoC implementation for advanced MIMO and cognitive radios. He has published 14 journal and 55 conference papers, and 8 international patents. He has got 3 times outstanding publication awards from NTHU and 1 excellent project award from National SoC Program, National Science Council. He has also four cases of technology transfer to the industries.

Biomedical Electronics and Applications

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Abstract

With the capability of low power, highly integration, and miniaturization, the ICT industry can contribute more and more to the biomedical applications. In this talk, two biomedical electronic design/applications will be introduced. The first is for patient-centric environment. We have finished an energy efficient prototype, energy-efficient chip, and flexible cloud for diagnostic grade mobile ECG monitoring. The prototype uses a mobile phone as a gateway to transmit the measured ECG data back to the medical cloud. Therefore, the patients are not tied to the hospital or home, and can go outside for common life. The prototype can calculate on the mobile phone the RR intervals. More accurate RR, QRS interval can be obtained from cloud. The platform can also analyze the non-linear analysis of heart rate variability in patients with congestive heart failure based on multi-scale entropy. The second will be the closed-loop stimulation and recording platform for neural mechanism study. With the possibilities of wearable sensing techniques, we can also extend the techniques to the life style applications or interdisciplinary collaborations. Some demos will be presented within the talk.