SEMINAR ANNOUNCEMENT

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
COLLEGE OF DESIGN AND ENGINEERING
Website: https://cde.nus.edu.sg/ece

Area: Microwave & Radio Frequency

Host: Professor Chen Zhi Ning

Technical Seminar Jointly Organized by
IEEE Singapore RFID and ECE NUS

Merlion RFID Forum 2023 Paper Sharing Series

TOPIC	:	**Machine Learning-Assisted Array Synthesis Using Active Base Element Modeling**
SPEAKER	:	**Professor Haiming Wang** **Southeast University, China**
DATE	:	**9 January 2023 (Monday)**
TIME	:	**4:00PM to 5:00PM**
VENUE	:	**E4-04-05, E-Cube 1** **College of Design and Engineering, National University of Singapore** **Alternatively,** **Join Zoom Meeting** **https://nus-sg.zoom.us/meeting/register/tZEkduyqrz0oGtTePlZoiW94zYdGN_qS_TRp** **[Registration is required]** **Meeting ID: 859 1521 6200** **Passcode: 226358**

ABSTRACT

Array synthesis under practical constraints is a vital design task. Traditional array synthesis methods usually deal with isolated antenna elements without considering mutual coupling (MC) or mounting-platform effects, which results in unacceptable degradation in practical array designs. An efficient machine learning-assisted array synthesis (MLAAS) method is introduced using efficient active base element modeling (ABEM). This method greatly extends the boundaries of practical antenna array synthesis from the perspectives of both accuracy and design freedom. Using much fewer samples than those in conventional MLAAS methods, all possible element designs are accurately modeled into one active base element (ABE). Compared with conventional active element pattern (AEP)-based methods, the ABEM aims to predict AEPs for elements with arbitrary allocations and electromagnetic (EM) surroundings, therefore offering more degrees of freedom for practical array designs. Four array design examples are used to verify the effectiveness of the proposed method.

BIOGRAPHY

Haiming Wang was born in 1975. He received the B.S., M.S., and Ph.D. degrees in Electrical Engineering from Southeast University, Nanjing, China, in 1999, 2002, and 2009, respectively.
He joined the School of Information Science and Engineering, Southeast University, Nanjing, China, in 2002, and is currently a distinguished professor. He is also a part-time professor with the Purple Mountain Laboratories, Nanjing, China. He has authored and co-authored over 50 technical publications in IEEE TRANSACTIONS ON ANTENNAS AND PROPAGATION, IEEE TRANSACTIONS ON COMMUNICATIONS, and other peer-reviewed academic journals. Prof. Wang has also authored and co-authored over more than 80 patents and 56 patents have been granted. He was twice awarded for contributing to the development of IEEE 802.11 by the IEEE Standards Association in 2018 and 2021, respectively. His current research interests include AI-powered antenna and radiofrequency technologies, AI-powered channel measurement and modeling technologies, and integrated communications, sensing, and positioning technologies.

E-mail: hmwang@seu.edu.cn

CONTACT PERSON

Dr. Xinyi Tang Tang_Xinyi@i2r.a-star.edu.sg
Dr. Peiqin Liu eleliup@nus.edu.sg

https://cde.nus.edu.sg/ece/highlights/events/