

SEMINAR ANNOUNCEMENT

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

Faculty of Engineering

Website: <https://www.eng.nus.edu.sg/ece/>

Area: Microwave & Radio Frequency

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**Jointly Organized by
National University of Singapore (NUS),
IEEE Singapore RFID Chapter,
IEEE Singapore MTT/AP Chapter &
IEEE Singapore EMC Chapter**

The seminar is FREE and NO pre-registration is needed.

Technical Seminar

TOPIC	:	AI-Powered Antenna Design
SPEAKER	:	Prof. Haiming WANG Southeast University, Nanjing, China
DATE	:	Monday, 1 February 2021
TIME	:	2.00PM to 3.00PM
VENUE	:	Join Zoom: https://us02web.zoom.us/j/87178684608 (passcode: rfid) The seminar is FREE and NO pre-registration is needed.

ABSTRACT

With the rapid development of modern wireless communications, radars, and other radio systems, antennas and arrays are becoming more complex, therein having, e.g., more degrees of design freedom, integration and fabrication constraints, and design objectives. While full-wave electromagnetic simulation can be very accurate and therefore essential to the design process, it is also very time consuming, which leads to many challenges for antenna design, optimization, and sensitivity analysis. In this talk, we first elaborate on the concept of AI-powered antenna design and related research background. Secondly, we present the machine-learning-assisted optimization for accelerating the design process of antennas and arrays. Next, five design cases of antennas and arrays are also introduced to help understand the algorithms. We proposed the multi-stage collaborative machine learning, which can be used to further accelerate antenna optimization. And we also proposed the multilayer machine-learning-assisted optimization to cope with the extreme-high computational complexity of sensitivity analysis and robust design. Finally, we discuss future works and conclude this talk.

BIOGRAPHY



Prof. Haiming Wang 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, China, in 2002, and is currently working with Southeast University as a professor. He has authored and co-authored over 50 technical publications in IEEE Transactions on Antennas and Propagation and other peer-reviewed academic journals. Prof. Wang has authored and co-authored over more than 70 patents and 52 patents have been granted. He was awarded for contributing to the development of IEEE 802.11aj by the IEEE Standards Association in July 2018. His current research interests include AI-powered antenna and radiofrequency technologies, AI-powered channel measurement and modeling technologies, and millimeter-wave and THz wireless communications.

IEEE Singapore RFID Chapter <https://r10.ieee.org/singapore-rfid/>

Marina Forum on EMetamaterials will be held on 4-5 March 2021 in Singapore www.marinaforum.org

<https://www.eng.nus.edu.sg/ece/highlights/events/>