

SEMINAR ANNOUNCEMENT

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

Faculty of Engineering

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

Area: Microwave & Radio Frequency

Host: Assoc Prof Koenraad Mouthaan

TOPIC	:	Digital Beamforming and Nulling in Antenna Arrays Using Software Defined Radio
SPEAKER	:	Mr Wang Jiahao Graduate student, ECE Dept, NUS
DATE	:	4 February 2020, Tuesday
TIME	:	10am to 11am
VENUE	:	E3-06-04, Engineering Block E3, Faculty of Engineering, NUS

ABSTRACT

Conformal antenna arrays are of high interest for automotive and aerospace applications. Such arrays can be conformed to the surface of vehicles and aircraft while providing minimum impact on aerodynamics. However, the way to design and analyze such antenna systems differs from the planar case. Also, beamforming and nulling for curved antenna arrays with directional elements, requires modification of the beamforming and nulling algorithms. Here, a linear array of four elements is considered on a curved surface. Instead of using traditional beamforming with phase shifters, software defined radio (SDR) is used. A method is proposed to achieve adaptive beamforming and nulling of the flexible array, by using a software defined radio (SDR) platform to feed the antenna array, in various conformed configurations. Minimum Variance Distortionless Response (MVDR) beamforming is used and adapted to the conformal antenna. Experimental results show good agreement with simulations.

BIOGRAPHY

Jiahao Wang is a PhD student in Department of Electrical and Computer Engineering, National University of Singapore. His research interest include software defined radio, beamforming and beamscanning, remote sensing and radar technology.

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