



The University of New South Wales
Faculty of Engineering
School of Electrical Engineering & Telecom
Distinguished Lecture

Sunzi Theorem and Signal Processing

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University of Delaware, USA



Date: 22 January 2009, Thursday
Time: 10:30 a.m. – 12:00 noon
Venue: G3, Electrical Engineering Building

Abstracts

Sunzi theorem is also called Chinese remainder theorem (CRT). It is to determine a large integer from its multiple remainders, which is well-known not robust. In this talk, I will first talk about its application in frequency estimation in signal processing. I will introduce a generalized CRT that determines multiple integers from multiple remainder sets. Then, I will introduce a robust CRT and a robust phase unwrapping. I will finally introduce several applications of robust CRT and robust phase unwrapping in SAR imaging of moving targets.

Biography

Professor Xiang-Gen Xia (F'09) received his B.S. degree in mathematics from Nanjing Normal University, Nanjing, China, and his M.S. degree in mathematics from Nankai University, Tianjin, China, and his Ph.D. degree in Electrical Engineering from the University of Southern California, Los Angeles, in 1983, 1986, and 1992, respectively.

He was a Senior/Research Staff Member at Hughes Research Laboratories, Malibu, California, during 1995-1996. In September 1996, he joined the Department of Electrical and Computer Engineering, University of Delaware, Newark, Delaware, where he is the Charles Black Evans Professor. He was a Visiting Professor at the Chinese University of Hong Kong during 2002-2003, where he is an Adjunct Professor. Before 1995, he held visiting positions in a few institutions. His current research interests include space-time coding, MIMO and OFDM systems, and SAR and ISAR imaging. Dr. Xia has over 180 refereed journal articles published and accepted, and 7 U.S. patents awarded and is the author of the book *Modulated Coding for Intersymbol Interference Channels* (New York, Marcel Dekker, 2000).

Dr. Xia received the National Science Foundation (NSF) Faculty Early Career Development (CAREER) Program Award in 1997, the Office of Naval Research (ONR) Young Investigator Award in 1998, and the Outstanding Overseas Young Investigator Award from the National Nature Science Foundation of China in 2001. He also received the Outstanding Junior Faculty Award of the Engineering School of the University of Delaware in 2001. He is currently an Associate Editor of the *IEEE Transactions on Wireless Communications*, the *Journal of Communications (JCM)*, and the *Journal of Communications and Networks (JCN)*, and *Signal Processing (EURASIP)*. He was a guest editor of *Space-Time Coding and Its Applications* in the *EURASIP Journal of Applied Signal Processing* in 2002. He served as an Associate Editor of the *IEEE Transactions on Vehicular Technology* during 2005 to 2008, the *IEEE Signal Processing Letters* during 2003 to 2008, the *IEEE Transactions on Signal Processing* during 1996 to 2003, the *IEEE Transactions on Mobile Computing* during 2001 to 2004, and the *EURASIP Journal of Applied Signal Processing* during 2001 to 2004. He is Technical Committee Chair of the Signal Processing Symposium in Globecom 2007 in Washington, D.C., and the General Co-Chair of ICASSP 2005 in Philadelphia.

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For ENQUIRIES: Dr. Wei Zhang (Ph: 9385 4033)