

# IEEE SIGNAL PROCESSING SOCIETY DISTINGUISHED LECTURE

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**MIN WU** Professor, University of Maryland, College Park  
*“When Power Meets Multimedia: Advances in Information Forensics Exploiting Micro-Signals”*

**Abstract:** Osama bin Laden’s video propaganda prompted information forensic questions: Given a video under question, when and where was it shot? Was the sound track captured together at the same time/location as the visual, or superimposed later? Similar questions about the time, location, and integrity of multimedia and other sensor recordings are important to provide evidence and trust in journalism, crime solving, infrastructure monitoring, and other operations. Although the R&D on power grid and multimedia signal processing did not seem to cross paths, an emerging line of research toward addressing these questions exploits novel micro-signal signatures induced by the power network. An example is the small random-like fluctuations of the electricity frequency known as the Electric Network Frequency (ENF), owing to the dynamic control process to match the electricity supplies with the demands in the grid. These micro-signals reflect the attributes and conditions of the power grid and become naturally “embedded” into various types of sensing signals. They carry time and location information and may facilitate integrity verification of the primary sensing data. This talk will provide recent information forensics research on ENF carried out by our Media and Security Team (MAST) at University of Maryland and discuss some ongoing and open research issues.

**Bio:** Min Wu is a Professor of Electrical and Computer Engineering and a Distinguished Scholar-Teacher at the University of Maryland, College Park. Her research and education have been recognized by a NSF CAREER award, a TR100 Young Innovator Award from the MIT Technology Review, an ONR Young Investigator Award, a Computer World “40 Under 40” IT Innovator Award, University of Maryland Invention of the Year Awards, an IEEE Mac Van Valkenburg Early Career Teaching Award, and several paper awards from IEEE SPS, ACM, and EURASIP. She was elected IEEE Fellow for contributions to multimedia security and forensics. Wu chaired the IEEE Technical Committee on Information Forensics and Security and has served as Vice President – Finance of the IEEE Signal Processing Society and Founding Chief Editor of the IEEE SigPort initiative. Currently, she is serving as Editor-in-Chief of the IEEE Signal Processing Magazine, one of the highest impact publications in electrical and computer engineering.



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