**Radar Horizons – Given to IEEE/AESS Washington, DC and Northern VA Chapters**

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Abstract

 This talk provides a comprehensive survey of major new developments in radar research and development, from next generation cognitive radar to “super antennas,” and radars that detect through buildings and around corners. The talk is designed to be of value to both the practicing radar engineer as well as non-specialists interested in advanced signal processing and systems engineering. Much of the material is drawn from Dr. Guerci’s own current research—including activities from his recent 7 year term at the Defense Advanced Research Projects Agency (DARPA). Specific topics covered include: cognitive radar and knowledge-aided processing; waveform diversity and optimal MIMO radar; low-power density apertures for airship, space, and ground-based applications; building penetration and multipath exploitation radar.