



## Recent Developments in Radar Systems

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### ABSTRACT

Radar systems, small or large, have received considerable interest by several civilian and military communities. This fact is evidenced through the large number of radar-related publications that appear in the literature every year. Organizations throughout the world are looking at these technologies and what advantages they may offer for their specific applications, including automotive, health, security, and military, with each requiring some performance feasibility study. Through these studies, comprising modeling and simulations, algorithm development, and experimentation for both moving target indication and imaging purposes, users can further assess the suitability of particular radar applications.

This presentation will provide an overview of the recent developments in radar systems, to include monostatic, bistatic, and multistatic. We first start with monostatic radar and walk through the many technical advances that led to the advent of distributed radar, identifying key strengths and weaknesses. Other sensing modalities are then introduced, and a detailed description of the different detection and imaging techniques will be discussed. The talk will conclude with several examples and offers some suggestions for future research.

### BIO



**Dr. Braham Himed** received the Engineer Degree in electrical engineering from Ecole Nationale Polytechnique of Algiers, Algeria in 1984, and his M.S. and Ph.D. degrees both in electrical engineering, from Syracuse University, Syracuse, NY, in 1987 and 1990, respectively. Dr. Himed is a Research Fellow with the Air Force Research Laboratory, Sensors Directorate, Multi-Spectral Sensing and Detection Division, Passive RF Sensing Branch, in Dayton Ohio, where he is involved with several aspects of radar developments. His research includes detection and estimation, multichannel adaptive signal processing, array processing, adaptive processing, waveform diversity and design, distributed active/passive MIMO radar, and over the horizon radar.

Dr. Himed is the recipient of the 2001 IEEE region 1 award for his work on bistatic radar systems, algorithm development, and phenomenology. He is a Fellow of IEEE (Class of 2007), a past-Chair of the IEEE AESS Radar Systems Panel, and the current AESS President-Elect. He is the recipient of the 2012 IEEE Warren White award for excellence in radar engineering. Dr. Himed is also a Fellow of AFRL (Class of 2013).