

Enabling Technologies for Software-Defined Radar

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Phased Array Radar capabilities have undergone a rapid transformation over the past two decades, enabled by a series of transformational technology developments. The introduction of Gallium Nitride (GaN) Amplifiers has raised Radar powers to levels previously unseen and while also dramatically improving the efficiency of the prime power source. Advances in Up-conversion/Down-conversion and signal processing hardware have made Digital Beamforming (DBF) Radars commonplace. Finally, wideband radiating apertures and RF front-ends allow for sensor convergence, where a single modern aperture can perform functions that previously required up to a dozen unique sensors. The author will discuss current state of the art technologies under development to enable the next generation of Software-Defined Radar systems, able to be rapidly reconfigured to support evolving missions with no required modifications to the Radar front-end.