



Colloquium Series



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Waves of Vision: mmWave Radar for Near-Surface observations of environmental processes

Abstract: In our research we present two mmWave radar platforms, one to focus on lab testing, sensor configuration, and design; the other to focus on field deployment, wireless connectivity, and acquisition of environmental data. We present the development of our range and doppler velocity detection algorithms and their results with stationary and moving objects. To determine the accuracy of our programs we used mmWave Studio and Radar Fusion GUI. Our results for range detection from both platforms were accurate, and results for doppler velocity were qualitatively accurate. Thus, both platforms can accurately detect the range and further work may be done to verify doppler velocity detection. These results can be used for further development of both platforms in efforts to obtain critical spatiotemporal data of near-surface environmental processes and combat climate change.

Keywords: mmWave Radar, Digital Signal Processing, Spatiotemporal data, Fourier Transform, range and doppler velocity detection.

Wednesday, September 13, 1:30 – 1:50 pm in 4-2-314