Bayesian Methods in Ground Penetrating Radar

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Abstract: A low frequency interferometer is used to collect data on subsurface obstacles. A simple model for the near-field reflection allows computation of the probability of the target location. The antennas of the interferometer are orthogonally polarized, and a balancing mechanism allows minimizing direct transmission of signals. Thus, the interferometer shows, mainly, reflections from changes in the geometry.

Applications tested were land mine location and utility pipe location. An added benefit is that reflections from layers of soil, due to the constant reflection from the layer, do not appear as distracting false targets.