

Abstract: In numerous applications, one is interested in deducing information about one or more objects from afar. One way to do this is by using some form of active probing, wherein a signal is transmitted at the object, with the reflections from it then measured and interpreted. This interpretation is often complicated by factors such as multipath, spread and/or diffuse reflections, inhomogeneous propagation, noise, interference, and non-stationary data. In this talk, I will briefly discuss such issues, highlighting some of the common challenges, current research, and open problems.