Super Resolution for Automated Target Recognition

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***Abstract*—Super resolution (SR) is the process of producing high-resolution (HR) images from low-resolution (LR) images while preserving ground truth about the subject matter of the images and potentially inferring more such truth. Algorithms that successfully carry out such a process are broadly useful in all circumstances where HR imagery is either difficult or impossible to obtain. In particular we look towards super resolving images collected using longwave infrared (LWIR) cameras; high resolution sensors for such cameras do not currently exist. We present an exposition of motivations and concepts of super resolution in general and current techniques, with a qualitative comparison of such techniques. Finally we suggest directions for future research, in particular with applications to LWIR images.**