The development of deep learning in synthetic aperture radar imagery

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ABSTRACT:

The usage of remote sensing to observe environments necessitates interdisciplinary approaches to derive effective, impactful research. One remote sensing technique, Synthetic Aperture Radar, has shown significant benefits over traditional remote sensing techniques but comes at the price of additional complexities. To adequately cope with these, researchers have begun to employ advanced machine learning techniques known as deep learning to Synthetic Aperture Radar data. Deep learning represents the next stage in the evolution of machine intelligence which places the onus of identifying salient features on the network rather than researcher. This paper will outline machine learning techniques as it has been used previously on SAR; what is deep learning and where it fits in compared to traditional machine learning; what benefits can be derived by applying it to Synthetic Aperture Radar imagery; and finally describe some obstacles that still need to be overcome in order to provide constient and long term results from deep learning in SAR.