
Day 2 (Wednesday, 26 October) 16:15 - 17:45, Hall A Technical Session 7 Surveillance Systems

T7-1-A

Airport Runway Area Segmentation in PolSAR Image Based D-Unet Network

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Runway segmentation for polarized synthetic aperture radar has been a problem of great interest in the field of synthetic aperture radar imagery. Its goal is to segment the radar image in order to determine the exact location of the runway and its unique morphology, which is crucial for both military and civil purposes. The extraction of runways for synthetic aperture radar pictures still relies heavily on conventional methods because of the issue of a little amount of data. However, the segmentation model of the convolutional neural network, which is popular in the segmentation task of optical pictures, has the advantages of high accuracy and versatility. Therefore, this paper proposes an airport runway segmentation algorithm based on Dilated U-net network for synthetic aperture radar, which can accurately extract airport runways even with a small amount of data using deep learning methods. This algorithm combines dilated convolution with a U-net network to extract the runway region. The addition of dilated convolution gives the original U-net network a larger perceptual field in the process of feature extraction, which is necessary for airport runway segmentation with a connected structure. After comparison experiments, the algorithm in this paper uses a deep learning method under the circumstance of a small amount of data to increase the accuracy of detection results and also reduce false alarms and missed alarms.

T7-2-A

Preliminary study on multilateration Performance for El Salvador's international Airport

Lizardo Arias, Werner Melendez (University of El Salvador)

Placement of master stations and receiving stations are localized around San Salvador's airport for a plausible implementation of a terminal area multilateration scheme, the performance of the multilateration system is shown with the aid of the horizontal dilution of precision for a synchronization error of 20 ns and 1 ns. The tentative locations for multilateration receiving stations in El Salvador's international airport offer a good horizontal dilution of precision for different altitudes, especially if a 1 ns synchronization system is chosen, which can benefit the surveillance of El Salvadorian air traffic as we can achieve HDOP values below 6, the obtained result shows the possibility of multilateration in El Salvador's international airport.