MSc in Applied Science Thesis Defense

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Enhancing Satellite Trail Detection in Night Sky Imagery with Automatic Salience Thresholding

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This study proposes a novel automatic thresholding method called Automatic Salience Thresholding (AST) for creating binary masks for detecting satellite streaks in night sky imagery. The approach utilizes a combination of Gaussian filtering, a salience-based thresholding technique, shape-based morphological filtering and line detection using Probabilistic Hough Transform to identify the satellite trail in the image. We evaluated our method on diverse datasets of night sky images containing satellite trails in varying lighting conditions. The results show that AST outperforms other methods in terms of a number of performance metrics. The proposed AST method was also used to generate annotated binary masks for Hubble Space Telescope (HST) image data with promising results.

Friday, August 25 @ 10:00 am
via MS Teams

For Teams connection details, contact: mathcs@smu.ca