Building Height Detection

# Image Processing (CS313a) – Project

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This Project applies the paper “A Shadow-Overlapping Algorithm for Estimating

Building Heights From VHR Satellite Images” by Kadhim *et al*.

PDF of the paper is in the Evaluation\_files folder.

# How to run

Simply run Project\_Final.m in a suitable environment and it’ll output a result plot (result\_plot.jpg) and the height of all the buildings from the dataset.

For details on the process of the workflow, please refer to the document “Final\_presentation.pdf” in Evaluation\_files.

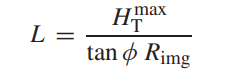
The comments in Project\_Final.m will also provide helpful insight.

# Dataset and Evaluation Folders

/Evaluation\_files – Contains the Paper and Presentation are located in

/Source Image – Contains Dataset for the project (5 images and their metadata.)

# Description of Scripts

1. Project\_Final.m has the complete code for every image written in order, with comments. Simply running it will provide the plot (same as in result\_plot.jpg) and the Jaccard Indexes of the all the 5 images in order.
2. Project\_Iteration.m consists of initial iterative code for all images. The difference between this script and Project\_Final.m is that in Project\_Iterative, Iteration is done to get optimal HTmax value for the formula:

Here, to get HTmax, iteration from is done till an optimal Jaccard Index (JI) value is obtained. This JI value is the optimal height. The problem with this iteration is that it takes a very long time to complete processing, hence, it has been processed once and the optimal value are noted and used in Project\_Final.m.

1. Segmentation\_#.m (# = 1->5) are Scripts that contain a mask function to perform segmentation. They are used in Project\_Final.m and Project\_Iterative.m as mask functions for the input images.