



# Master Thesis- Positional Aware Content Based Image Retrieval for Geolocalization

## About Maxar

Maxar Sweden serves the global professional geospatial market with world-leading 3D geodata, 3D visualization solutions, and 3D image processing solutions. We're on a mission to build the Globe in 3D—a revolution in GEOINT tradecraft—that offers decision makers and analysts the entire world in highly accurate, immersive 3D. Maxar's customers are varied and come from the telecommunications, emergency response, defense, and intelligence communities.

We are searching for the best and brightest to join a culture that is open and flexible, inclusive and positive. We offer opportunities for growth and the ability to work with talented people who make a real difference for our clients. Most of our research and development work is done in our Linköping office in Sweden, which employs about 80 engineers who work on cutting-edge technology to produce unparalleled, global, precise 3D geospatial data and software.

## The Thesis

Over the past decades CBIR (Content Based Image Retrieval) has been a hot research topic within the computer vision society. It has been proven successful in many different domains such as classification, image labeling and facial recognition. Attempts have also been made to bring CBIR into the geolocalization domain - image based geolocalization – referencing an image to geospatial data, such as finding the correct aerial image given an image from ground level view.

Successful image retrieval relies heavily on a content rich database, in this thesis the student will be provided Maxar's 3D data as source database. The images that are to be geolocalized are aerial and uav images. These images can also be provided by Maxar, but the student is free to investigate open datasets and evaluate their usability for the task.

The thesis should explore ways to sample the 3D data for the given task at hand, formulate and test image based geolocalization frameworks, drawing inspiration from earlier work in the field.

## Qualifications

Master of Science student with an interest in computer vision, computer graphics and machine learning.

Maxar International Sweden AB  
Ebbegatan 13  
582 13 Linköping



## Contact

Sanna Ringqvist

0734188389

[sanna.ringqvist@maxar.com](mailto:sanna.ringqvist@maxar.com)

Maxar International Sweden AB  
Ebbegatan 13  
582 13 Linköping