PREFACE

Glacier worldwide have been in constant decline for a the recorded history of last two centuries. They have also been the indicator for climate changes that everyone of us. Studying glaciers and monitoring them is more vital now then it might have been earlier when the world was not threatened by global temperature rise.

Glaciers are attributed to the major sources of water for the number of regions, historically the were the region where the availability of freshwater attracted settlements. Glaciers of different types hold the majority of freshwater available to us. Therefore glaciers are not only important from the perspective of climate change but also a major water security concern.

Studying and monitoring glaciers have become possible using remote sensing techniques, gone are the days when expeditions were planned for single query regarding glaciers. Though remote sensing data has greatly enhanced and eased monitoring of glacier but mapping and of debris covered glacier have remained an area where the conventional remote sensing techniques fail to produce acceptable results. To automate the process and for making glacier inventories, the method of semantic segmentation of debris covered glacier using Convolutional Neural Network(CNN) is used in this study. The methods have shown high accuracy in identifying object, classifying object and segmentation. With the enormous amount of data the use of conventional methods in mapping glacier might not be efficient making deep learning an attractive option.