EN.601.661 Computer Vision
Final Project Proposal
"Crop Analysis from Satellite Images"

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Abstract

For our final project we intend to perform analysis on a time series of satellite images of agricultural crops. The goal is to be able to derive conclusions given a dated satellite image of a field: the type of crop (wheat, corn, and soybean) and the expected yield at harvest time.

Our problem is two-fold: a supervised classification problem for the crop identification process, and a linear regression one for prediction the expected yield. The plan is to build a convolutional neural network and train it with a dataset of images paired with the date, type of crop, and yield for that year.

In principle, we will have to build the dataset ourselves, since at the time of writing we have not found an existing dataset with our requirements. The images will be downloaded from Planet.com, a satellite imaging company which kindly shares images for education and research purposes. The yield information will be obtained from the United States Department of Agriculture, which provides this information periodically.

Sources:

1. Planet.com
2. USDA - National Agricultural Statistics Service

Abstract