Capstone 2: Project Proposal

Category: Real Estate

Problem Statement

How can we automate the identification of profitable investment properties for both flipping and renting based on images?

Wait – so are we trying to predict what houses will sell for? Or are we just trying to identify profitable properties? *BOTH!* In order to identify profitable properties, we have to *FIRST* be able to predict what they’ll sell for. *BUT* – we need to take it a step further and have a flag for a ‘fixer-upper’. Some are labeled this way, but many aren’t. And/or if focusing on one very specific market/area, you can know if something has potential based on the asking price alone in many cases

In real life/practice, there are plenty of automation mechanisms to predict current anticipated value based on text metrics alone – recent sales of “comps” – nearby houses with similar features on paper, zip code, #bedrooms, #bathrooms, square footage, age, etc. Then a human will go in or look at the pictures to visually asses the property and tweak that number accordingly, based on condition, updatedness, view, open-concept or not, yard size, special features such as a pool or furnished basement, neighbors/neighborhood, etc – all things that can’t be factored in and captured by automated text-only-based predictive models.

The goal of this is to us AI/neural networks to visually assess the property for us, based on pictures. We can train the model, telling it examples of what should boost the value and what should hurt it, perhaps through a simple scoring system / multiplier

What We’ll Need

* A dataset of real estate listing images and their associated sale prices
  + <https://www.kaggle.com/amir22010/house-price-estimation-from-image-and-text-feature/data>
* A script to pull images of sold listings
* A way of projecting, based on ‘fixed up’ / ‘modernized’ homes, what the sale price of the unrenovated home in question *WOULD* be *once* it is fixed up

It’s also likely that there’ll be an ideal range of bedrooms and bathrooms to target

Of course, as is with any predictive model, ultimately a human would need to sift through the presented findings, at least visually, if not in person, to determine if there are any factors that aren’t being caught by the model, such as an oddly placed feature or lack of main floor bathroom or inability to remove a wall without compromising structural integrity

Other stuff:

* Kaggle competition on predicting housing prices
* May be tricky to train data set with mixing pictures and text
* Dataset found only has 4 pictures for each house – would like to make a model that utilizes more pictures, especially since may not be using *ANY* textual data!
* Could do that by writing a script / using selenium web driver to mimic a person using a website
* Need to learn about Convolution Neural Networks & Deep Learning for dataset with images – get briefed by Raghu & get training resources