

Your Crib's Climate Cost

Predicting housing prices in the era of climate change

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Climate change is worsening!

San Francisco
2020

As wildfires rage, climate experts warn: The future we were worried about is here

Wildfires in the U.S., Australia and Siberia have driven home how climate change is already threatening to destroy ecosystems in various parts of the world.

nbcnews

theguardian.com: Frederic Larson/AP

Alabama
2020

cnn.com: Joe Raedle/Getty Images

More people considering climate change when purchasing a home



<https://www.wsj.com/articles/if-you-sell-a-house-these-days-the-buyer-might-be-a-pension-fund-11617544801>




“73 percent of millennials say climate change affected where they planned to live.”

-Marie Haaland of the NYPost, **“Majority of young Americans say climate change affects their major life decisions”**

My webapp will predict the effects of climate change (wildfires, floods, temperature, precipitation) on future housing prices

Data Sources and Analysis

Datasets

- Housing prices and parameters
 - Zillow: 69 MB
 - RedFin: 948 MB
- &
- Past precipitation and temperature:
 - Carnegie Mellon University Dataset; 300 MB
- 
- Future Precipitation and Temperature
 - NASA NEX DCP30; ~60 GB

Analyses

- Autocorrelation Function / Seasonal Decompositions
- 

Auto Regressive Integrated Moving Average (ARIMA)

OR

Long/Short Term Memory (LSTM)

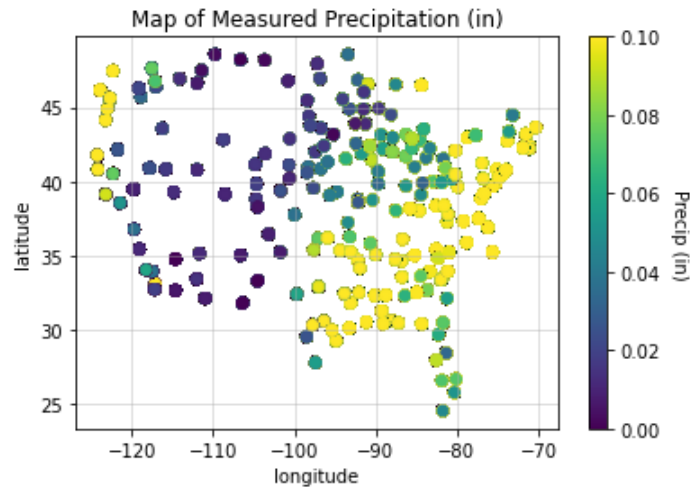


FORECAST!

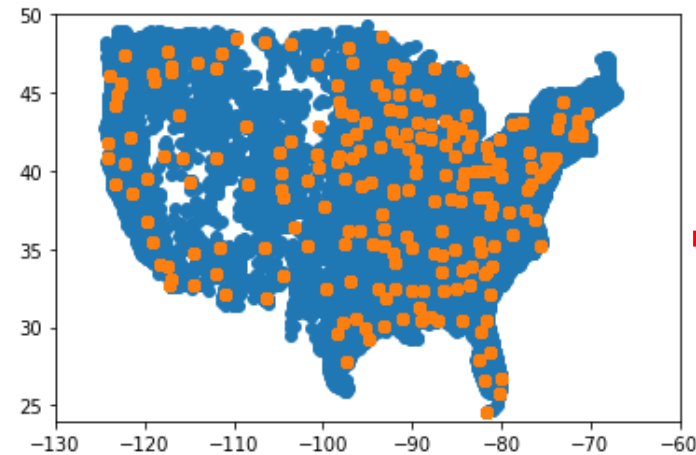


Current Progress: Data Merging / Averaging

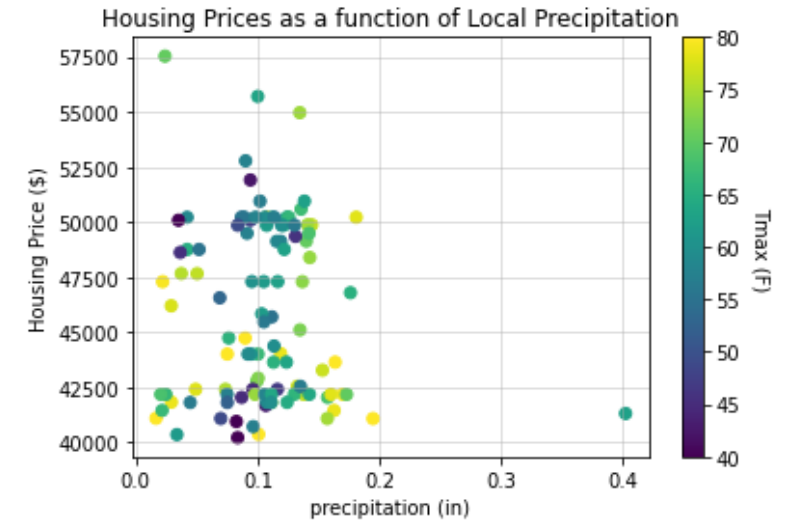
a) Temperature/ Precipitation



b) Temperature/ Precipitation (orange)
Zillow housing price data (blue)



c) same spatial and temporal resolution!



Next Steps: Correlations

REDFIN

```
average_homes_sold_yoy    total_homes_sold_with_price_dr
total_homes_sold_with_price_dr_yoy
average_homes_sold_with_price_drops
average_homes_sold_with_price_drops_yoy
percent_homes_sold_with_price_drops
percent_homes_sold_with_price_drops_yoy
median_sale_price_yoy    median_sale_ppsf
median_sale_ppsf_yoy    median_days_to_close
median_days_to_close_yoy    price_drops    price_drops_yoy
percent_active_listings_with_price_drops
percent_active_listings_with_price_drops_yoy
pending_sales    pending_sales_yoy    median_pending_sqft
median_pending_sqft_yoy    off_market_in_two_weeks
off_market_in_two_weeks_yoy    off_market_in_one_week
off_market_in_one_week_yoy    percent_off_market_in_two_week
percent_off_market_in_two_weeks_yoy
percent_off_market_in_one_week
percent_off_market_in_one_week_yoy    total_new_listings
total_new_listings_yoy    average_new_listings
average_new_listings_yoy    median_new_listing_price
median_new_listing_price_yoy    median_new_listing_ppsf
median_new_listing_ppsf_yoy    inventory    inventory_yoy
total_active_listings    total_active_listings_yoy
active_listings    active_listings_yoy    age_of_inventory
age_of_inventory_yoy    homes_delisted    homes_delisted_yoy
```

Correlations

Thank You! Questions?



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MOTIVATION

Predicting
future housing
prices for
remote
workers and
real estate
investors

DATA SOURCES

Housing
Precipitation
Temperature

ANALYSIS

ARIMA
LSTM