DataInFormation℠

Solutions Brief

With our flagship DataInFormation℠ suite of solutions for Image Labeling, Data Annotation, NLP Calibration and Form Data Capture, Liberty Source is proud to serve a wide range of clients across many industry verticals. Our Solution Briefs provide a snapshot of the challenges clients bring to us, and the outcomes we achieve for them.

Model-Assisted Claims Assessment

Industry	Data Type
Financial Services / Insurance	Image (.jpg, .png)
Project Duration	**Ongoing?**
3 months	No

Challenge

For property insurance adjusters, assessing roof damage can be very time-consuming and dangerous. This applies to both commercial and residential roofs, and covers all types of roof damage, including hail, high winds, leaks, etc. In cases where direct access to a damaged roof is not possible or is extremely unsafe, high-resolution drone photos can be used to assess the damage. A system was needed to better capture and classify roof damage in order to reduce loss rates and lower the cost associated with claims processing.

Solution

To increase adjusters' efficiency, we developed a model that would *automatically* review images and find defects. Building such a model requires large amounts of time and specialized talent to assess and annotate thousands of images.

Because their adjusters weren't able to provide the time needed to train the model, our solution was to use *model-assisted labeling*, which combines the efficiency of an automated process with a review by an insurance professional.

This human-in-the-loop (HitL) step leverages the efficiency of an automated process to reduce the time demand on the adjusters, and the model is being built and trained while claims continue to be processed.

In addition, this process ensures that all outputs benefit from the adjuster's expertise and judgment. Corrections and improvements, which are made based on the insurance professional's feedback, are entered into the automated process to continually enhance the accuracy of identifying the defects.

Outcome

Automatically identifying defects in the rooftop images, resulted in reduced loss rates, while the lowered time demands on the adjusters reduced claims processing costs.

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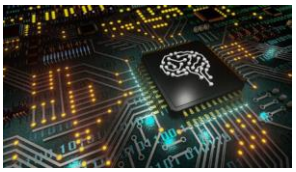
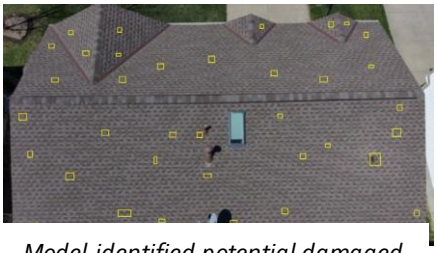
Client database with 100k+ images of roofs.

Green box (right) indicates our Human-in-the-Loop process.



Machine learning model trained from machine learning annotators provided a damage detection model.

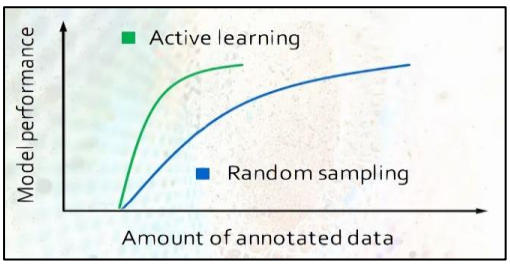


Model identified potential damaged areas and presented those areas to an insurance professional.

Adjusters deleted or modified the machine's labels as needed. This saved time and resources for the company by requiring a minimal time commitment from the adjusters.


```
{'featureId': 'cleyuybfg0002356j84pbgjf4',
 'schemaId': 'clexbtm2w02qk072af6238q7s',
 'color': '#1CE6FF',
 'title': 'col_1_row_1',
 'value': 'col_1_row_1',
 'polygon': [{'x': 1022.798, 'y': 550.594},
  {'x': 878.798, 'y': 4962.594},
  {'x': 2818.798, 'y': 5026.594},
  {'x': 2876.131, 'y': 2878.594},
  {'x': 2913.465, 'y': 2494.594},
  {'x': 2966.798, 'y': 606.594}],
```


Updated output were passed into the model to retrain it.



Having an insurance professional correct the output increases the model's learning rate substantially, compared to random sampling. Their corrections reduce uncertainty, so the model's performance improves faster.

Claim is settled.

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