Annotation Tool for Biomedical Images

DataMD

Problem Statement

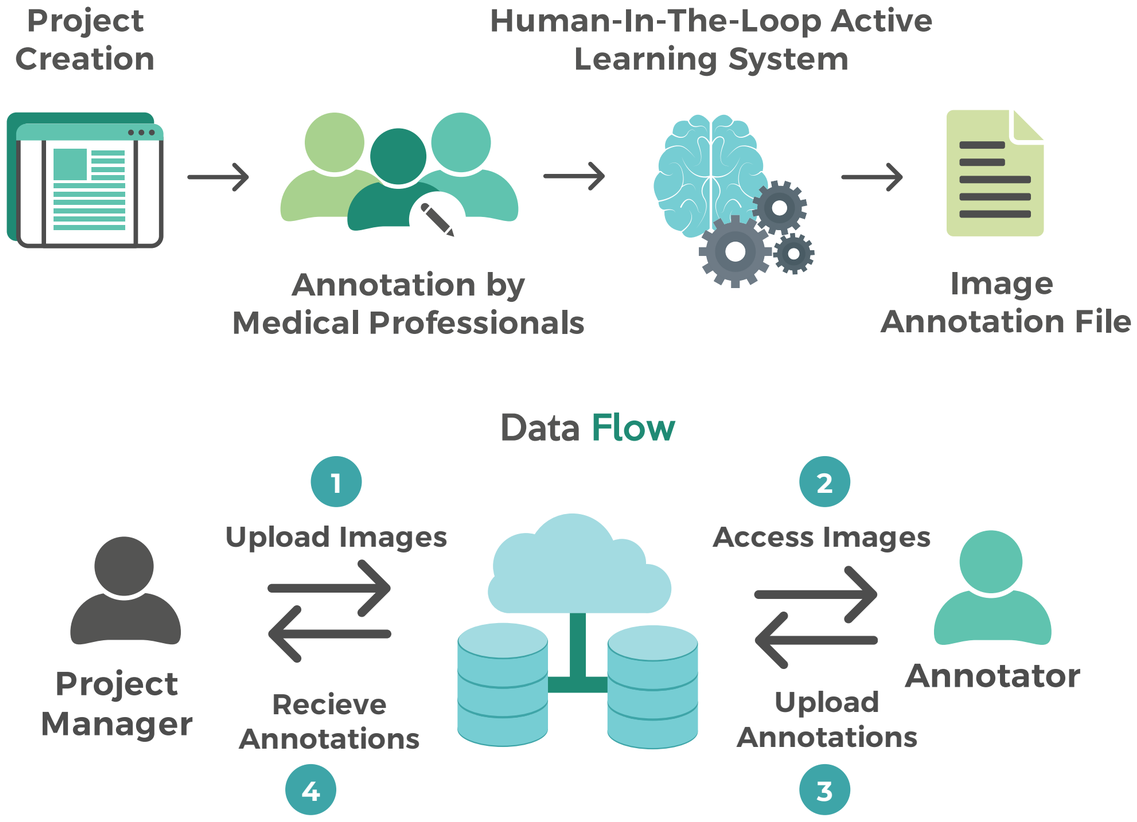
Medical institutions generate large volumes of biomedical image data that can be used to train supervised models for valuable AI-assisted diagnosis in healthcare. However, annotating biomedical images is a laborious process that also needs input from professionals for accuracy.

Proposed Solution

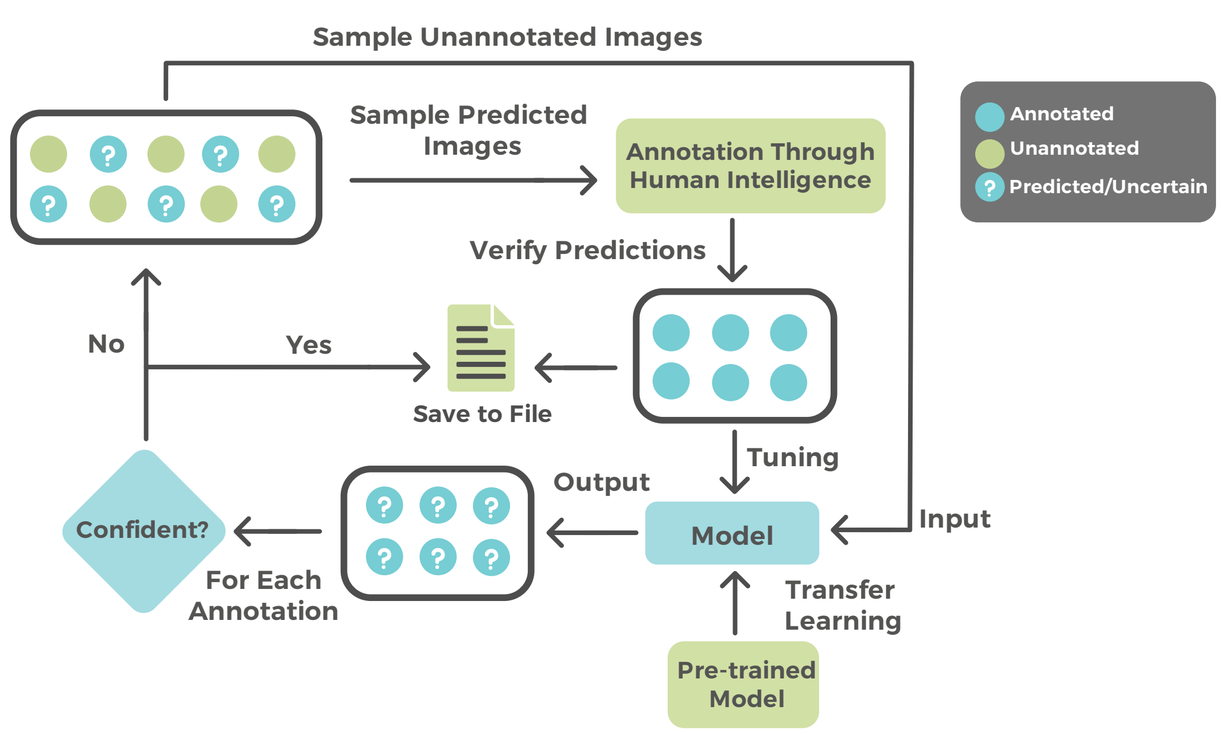
- Online, collaborative tool
- Specialised for medical professionals
- Smooth completion of annotations with an optimised user interface
- Human-In-The-Loop active learning architecture built on a pre-trained machine learning model

Objectives

Methodology



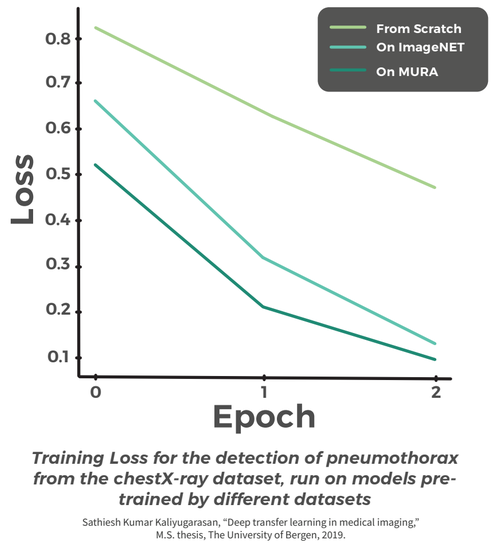
Architecture



Features

- **Saves Time in Annotation**
- **Human-In-The-Loop Machine Learning**
- **Clear & Usable User Interface**
- **Collaborative Teams**

Results



Training Loss for the detection of pneumothorax from the chestX-ray dataset, run on models pre-trained by different datasets

Sathiesh Kumar Kaliyugarasan, "Deep transfer learning in medical imaging," M.S. thesis, The University of Bergen, 2019.

Conclusion

The project will be evaluated on the following metrics:

- Accuracy of the annotation prediction confidences
- Time-taken to annotate compared to similar software
- Evaluation by Nielsen's 10 Usability Heuristics

Technology

JS, django, TensorFlow, MySQL, Python, Google Cloud

Group Members

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