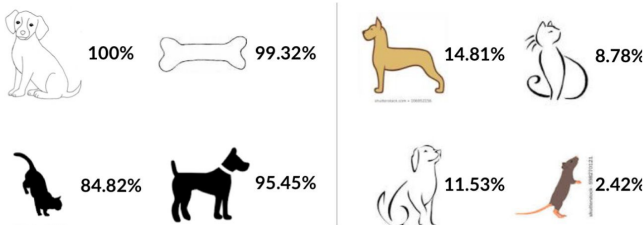# Tactiled: Towards More and Better Tactile Graphics Using Machine Learning

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The Problem

Example of scores for different images

100% 99.32% 14.81% 8.78%

84.82% 95.45% 11.53% 2.42%

Results for different images tested with Tactiled. On the left side we have images determined as suitable by our TVI input and the ml model trained. On the right side we have random images that are categorized as unsuitable images to make TGs because of their complexity.
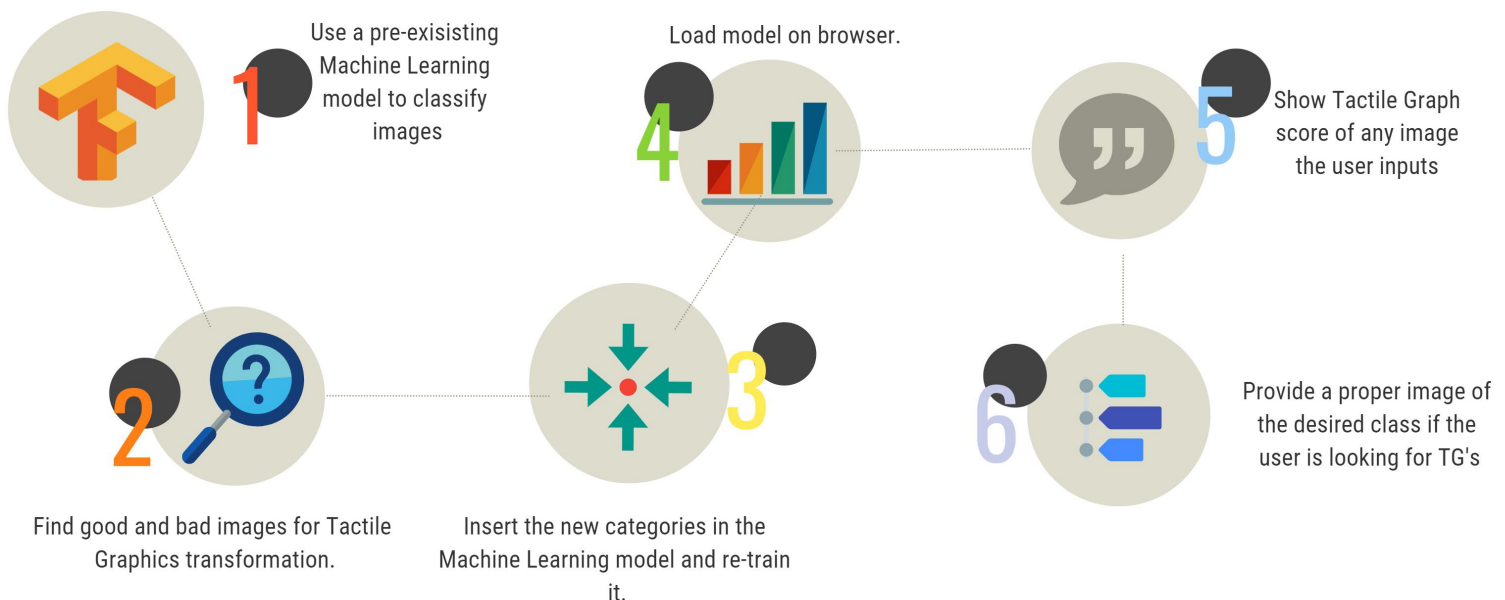
Tactile graphics are the main way for people with visual disabilities access to visual concepts. One of the biggest barriers to create and use more tactile graphics is that they are time-consuming to make.

In order to make tactile graphics more available, we designed a system that lets users check if an input image can be transformed, through standard algorithms, into a reliable version of a tactile graphic.

The Solution

Tactiled is a system formed by: (1) the ML model trained with 800 images collected from the American Printing House tactile Library and the researchers, (2) a web application that lets TVIs retrain the model by feeding new images and helping with the classification. This system can then be used by anyone, especially parents and teachers, as a filter to produce new TGs.

1 Use a pre-exisisting Machine Learning model to classify images

2 Find good and bad images for Tactile Graphics transformation.

3 Insert the new categories in the Machine Learning model and re-train it.

4 Load model on browser.

5 Show Tactile Graph score of any image the user inputs

6 Provide a proper image of the desired class if the user is looking for TG's

In the future, we will work on improving our ML model by feeding it a bigger database Better images and improving the platform usability. We also plan on creating multiple models to simplify and improve the classification accuracy, by making models specialized on different categories (e.g., animals, buildings, maps, objects).