ARE YOU A CHIHUAHUA OR A MUFFIN?

Sharon Lee, Sarah Lew, Samantha Su, Tracy Sun, Irena Wong
UCSB Data Science Club

OBJECTIVE

Artificial Intelligence often struggles to discern between objects that humans can easily distinguish. After being inspired by a meme, we sought out to confront this challenge, developing a model and application to differentiate between chihuahuas and muffins and categorize images of users into the two groups.

99% ∿ OF PEOPLE 🧍🧍 CAN'T SPOT 👁️👄👁️ THE DIFFERENCE.

DATA EXPLORATION

- Gathered initial dataset of **~6000 chihuahua and muffin images** from Kaggle
- Added ~10000 images to our dataset using **Bing API, BeautifulSoup, and Selenium** web scraper
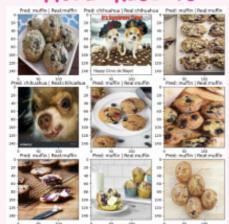- Enhanced data quality using data augmentation

METHODOLOGY

We trained a **convolutional neural network** model on our data using **Tensorflow**.

- We then incorporated the model into a **Flask** web app with **OpenCV**, enabling users to take photos and determine if they more closely resemble a chihuahua or muffin.

MODEL TRAINING

Model Performance on Training Data

MODEL RESULTS

Accuracy on test set: **0.88**

CONCLUSION

- Our model decided that **all people look a lot closer to chihuahuas than muffins**.
- We originally ran into a lot of misclassification of muffins due to the model picking up on background details, so we **removed backgrounds from all images** going through the model.
- While it may be a small and silly example, the difficulty models such as ours have in differentiating chihuahuas and muffins demonstrates an interesting blind spot that is an ongoing problem for computer vision models.