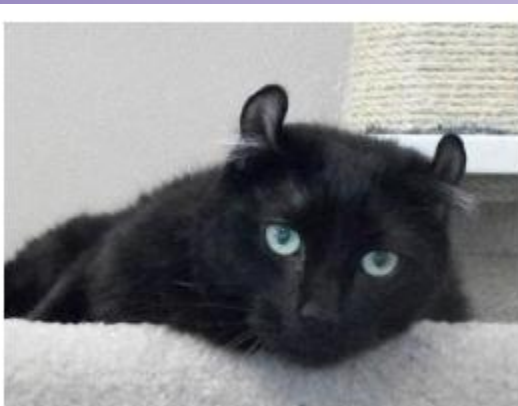


Presented by Team 4:  
Austin Cappetta, Harris Hurley,  
Kevin Miller, Jacinto Quiroz,  
James Yao

# Purr-plexing Paw-traits



# **Project Goal:**

Can we build an  
AI model that can  
correctly identify  
cat breeds via  
picture?





# The Dataset

- “Cat Breeds Dataset” from Kaggle
- <https://www.kaggle.com/datasets/ma7555/cat-breeds-dataset/data>
- 67 different breeds
- 67,145 pictures

```
filtered_df["breed"].value_counts()
```

breed	
Domestic Short Hair	4049
Persian	3999
Domestic Long Hair	3967
American Shorthair	3964
Domestic Medium Hair	3819
Calico	3389
Dilute Calico	3212
Dilute Tortoiseshell	3144
Siamese	2695
Ragdoll	2656
Torbie	2525
Tuxedo	2240
Manx	2048
Bengal	2044
Tabby	1989
Russian Blue	1842
Tortoiseshell	1625
Bombay	1618
Snowshoe	1609
Tiger	1590
Maine Coon	1397
Himalayan	1285
Extra-Toes Cat - Hemingway Polydactyl	1181
American Bobtail	985



# The Process



We chose to use a CNN (Convolutional Neural Network), which is commonly leveraged for classifying images.

For a data source, we searched kaggle datasets with sufficient samples per cat species.

We preprocessed the images to consistent sizes, and filtered out ones that only had single-digit samples.

Using ResNet50 and no additional fitting, we observed the outputs.

# Testing Results

And the accuracy is.... < 10%.

For our use case, an out-the-box model will perform poorly.

Performance would improve with higher-level classifications (e.g. hamburger, ice cream, hotdog, etc).

Results heavily skewed towards:

- Egyptian
- Tabby
- Siamese
- Persian

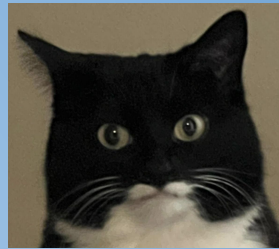


# Difficulties with Model



# Additional Considerations

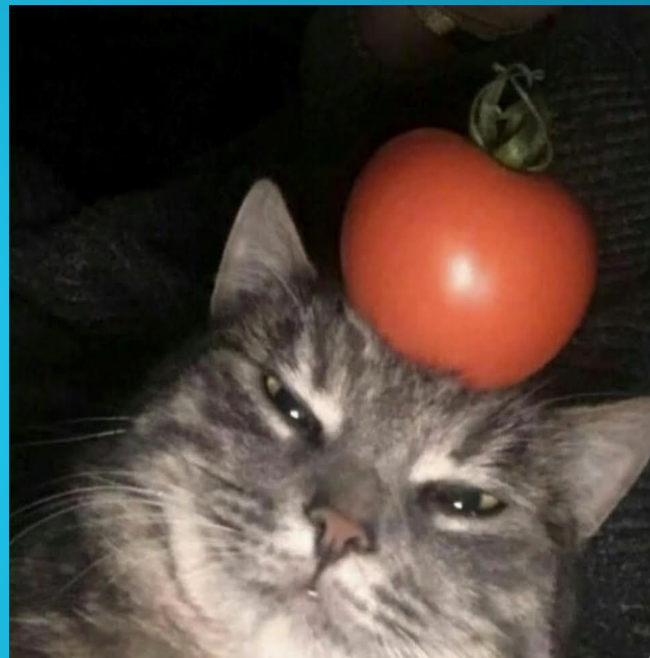
- Trained a model from scratch
- Filter the dataset based on the implications of the species options
- Include species popularity data, to see if there's correlations with pretrained model outcome
- Postprocess images more, to remove non-cat objects, like couches







**Live Demo**





# Final Thoughts!

Initial image set needed significant tuning

Model choice was major hindrance

- Could pick new model or build a custom model

Bias towards certain breeds

Could try to distinguish between cats and (hot) dogs, rather than subtle differences like breeds



# **Thank You for a Great Class!**

## **Any Questions?**

Our GitHub Repo:

[https://github.com/YuJames/riceai\\_project3\\_team4](https://github.com/YuJames/riceai_project3_team4)

