

TEMPLATE

Donut or Bagel

Team 0: Peter Petes, Dan Daniels, Rita Skeeter

Building a model to classify if an image is a donut or a bagel

[https://github.com/\[your account\]](https://github.com/[your account])



The Erdős Institute

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The Problem and Goals

Facts: According to a recent survey* of American eaters, 13 million Americans eat bagels each day. Another recent survey* of American bakers suggests that only 11 million bagels are sold daily.

Problem: This suggests that roughly 2 million Americans could be confusing donuts for bagels and consuming unnecessarily large quantities of sugar which is understandable given their topological equivalence.

Goal: create an image classification algorithm to help Americans distinguish between these delicious baked items.



Our Approach and Teamwork

Data gathering and cleaning: We scraped google images and gathered over 500k images of bagels [Rita]. We then scraped google images and gathered over 500k images of donuts [Rita]. We then manually cleaned out over 1k images in each category that were falsely labelled [Pete].

Supervised learning: We applied [Rita+Dan]...

Unsupervised learning: We applied [Pete+Dan+Rita]...



Methods/Packages Used

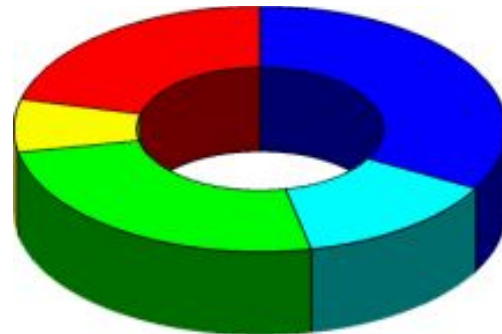
1. cv2 (computer vision), sklearn (statistical analysis)
2. Principal Component Analysis, PyGlaze, PyChart, to identify toppings/fillings
3. Extremely Random Forests
4. t-SNE



Donut?



Bagel?



Pie chart?



Results and Challenges

1. The following methods were horrible: ...
2. We achieved **83% image classification accuracy** by using the following:...
3. Sprinkles and sesame seeds were very difficult to distinguish.
4. Things like this exist:



WT?!?!?



Next Steps

1. Image classify bagel and donut flavors
2. Create an app for Android and iOS



Thank You!

TEAM 0: Donut or Bagel

[https://github.com/\[your account\]](https://github.com/[your account])

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