**Naïve Bees: Predict Species from Images**

Build a model that can automatically detect honey bees and bumble bees in images.

#### Project Description

Can a machine distinguish between a honey bee and a bumble bee? Being able to identify bee species from images, while challenging, would allow researchers to more quickly and effectively collect field data. In this project, you will use the Python image library Pillow to load and manipulate image data, then build a model to identify honey bees and bumble bees given an image of these insects.

This project is the second part of a series of projects that walk through working with image data, building classifiers using traditional techniques, and leveraging the power of deep learning for computer vision.

The recommended prerequisites for this project are [Intermediate Python for Data Science](https://www.datacamp.com/courses/intermediate-python-for-data-science), [Introduction to Data Visualization with Python](https://www.datacamp.com/courses/introduction-to-data-visualization-with-python), [Supervised Learning with scikit-learn](https://www.datacamp.com/courses/supervised-learning-with-scikit-learn), and [Naïve Bees: Image Loading and Processing](https://www.datacamp.com/projects/374).

#### Project Tasks

* 1 Import Python libraries
* 2 Display image of each bee type
* 3 Image manipulation with rgb2grey
* 4 Histogram of oriented gradients
* 5 Create image features and flatten into a single row
* 6 Loop over images to preprocess
* 7 Scale feature matrix + PCA
* 8 Split into train and test sets
* 9 Train model
* 10 Score model
* 11 ROC curve + AUC