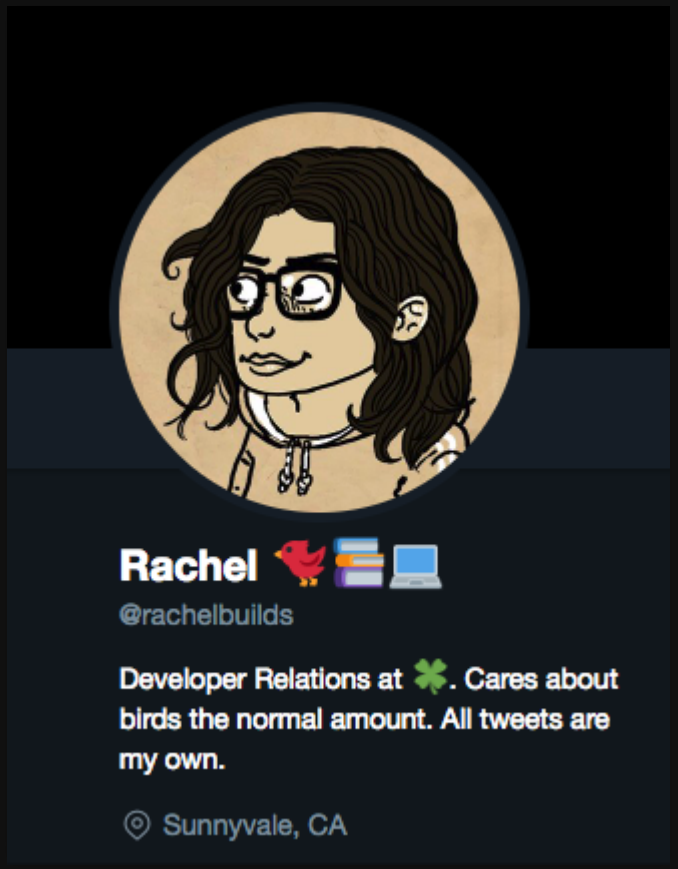
Building a Twitter Bot with Flickr and GCP

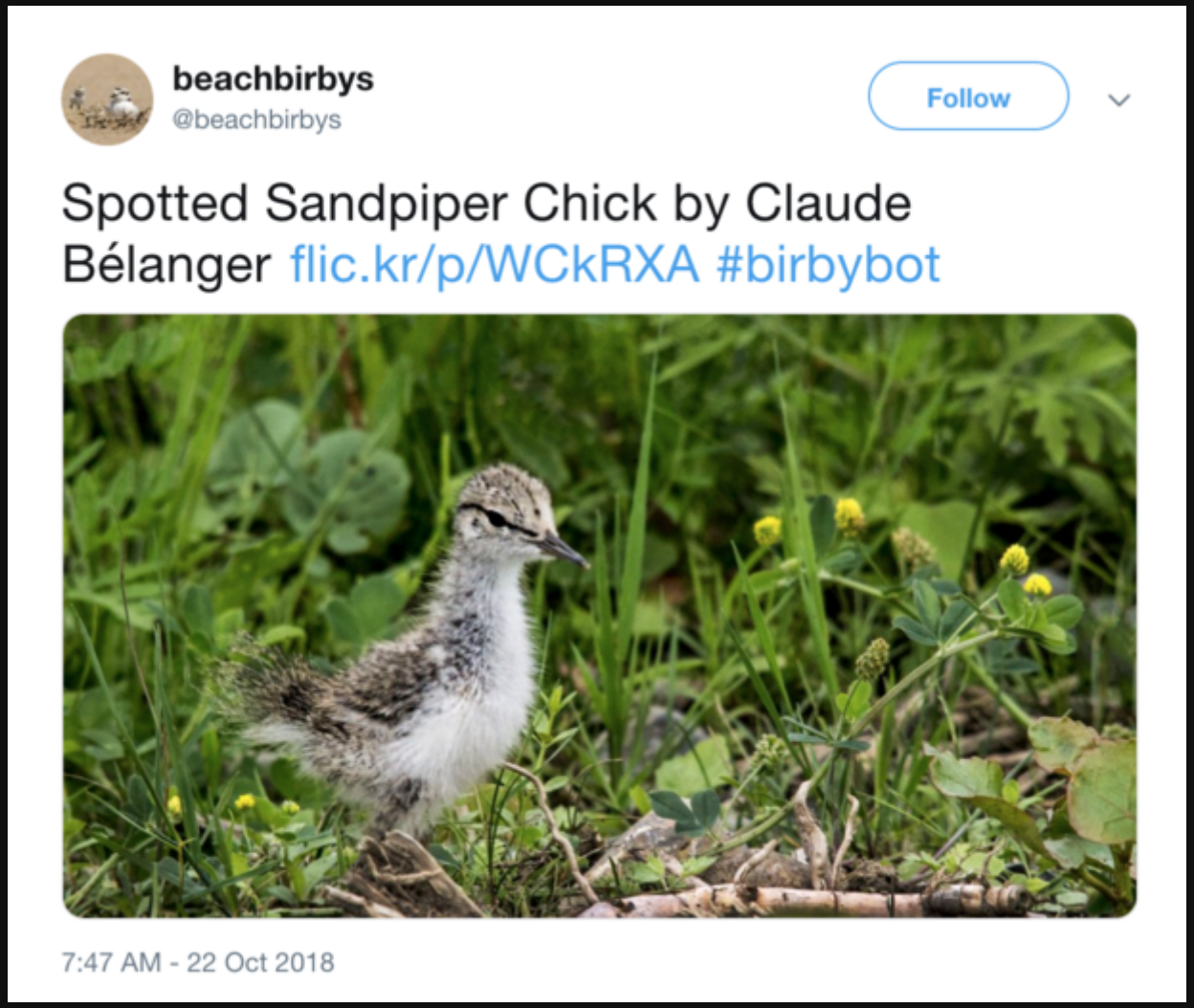
Meet your bird nerd



@rachelbuilds

A Simple Question

"What if I made a bot that exclusively posted pictures of plovers and their babies?"



@beachbirbys

A Simple Plan

1. Get pictures of plover babies.
2. Post those pictures to Twitter.
3. Feel dopamine flood my brain.

Problem #1

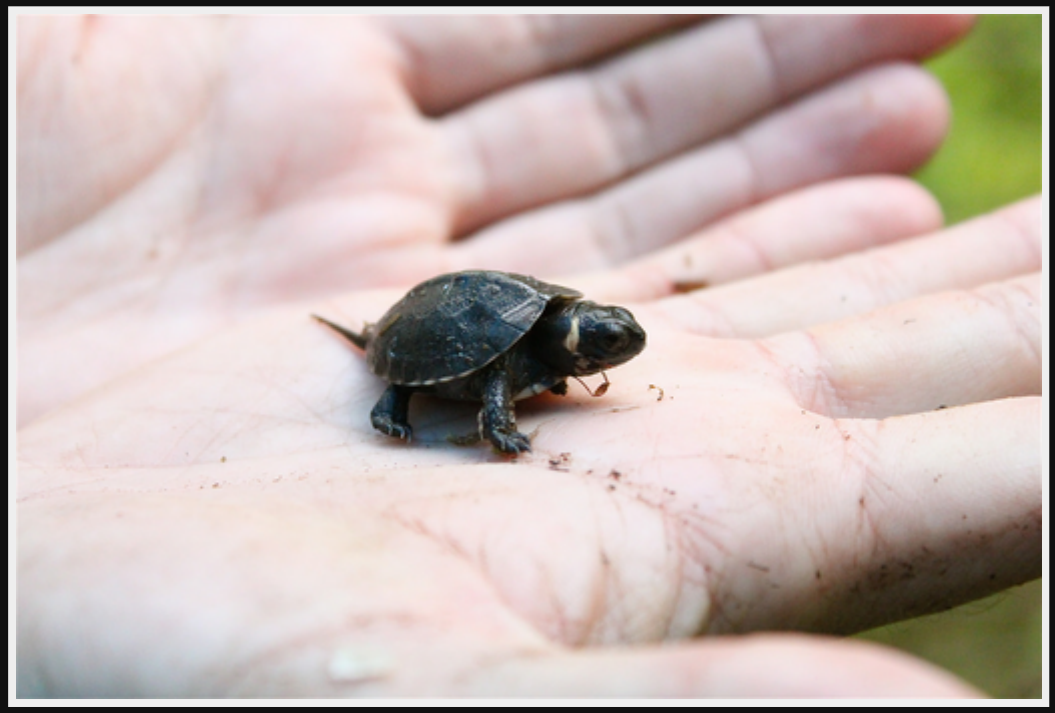
Where am I gonna get my plover pictures?

Solution #1

Searching Flickr

```
resp = flickr.photos.search({"text": "plover baby"})
```

That's not a bird...



Flickr returns photos that contain the search term in their title, description, or tags.

...threatened and endangered species that occur in Connecticut, including the threatened bog turtle, piping `plover`*, and Puritan tiger beetle...*

Problem #2

How do I make sure that my bot only tweets bird photos?

Cloud Vision API

...easily integrate vision detection features within applications, including image labeling, face and landmark detection, optical character recognition (OCR), and tagging of explicit content.

Approach #1

Label Detection

detects broad sets of categories within an image

Definitely not a bird

```
fauna 0.86
turtle 0.85
emydidae 0.81
terrestrial animal 0.81
reptile 0.78
insect 0.76
organism 0.74
beetle 0.60
tortoise 0.59
box turtle 0.53
```

But this is a bird

```
sand 0.78
```

Approach #2

Object Localization

detects and extracts multiple objects in an image

Well, it's definitely something...

```
name: "Animal"
score: 0.6270866990089417
bounding_poly {
  normalized_vertices {
    x: 0.4472714960575104
    y: 0.6022735238075256
  }
  normalized_vertices {
    x: 0.6556387543678284
    y: 0.6022735238075256
  }
  normalized_vertices {
    x: 0.6556387543678284
    y: 0.7196335792541504
  }
  normalized_vertices {
```

Solution #2

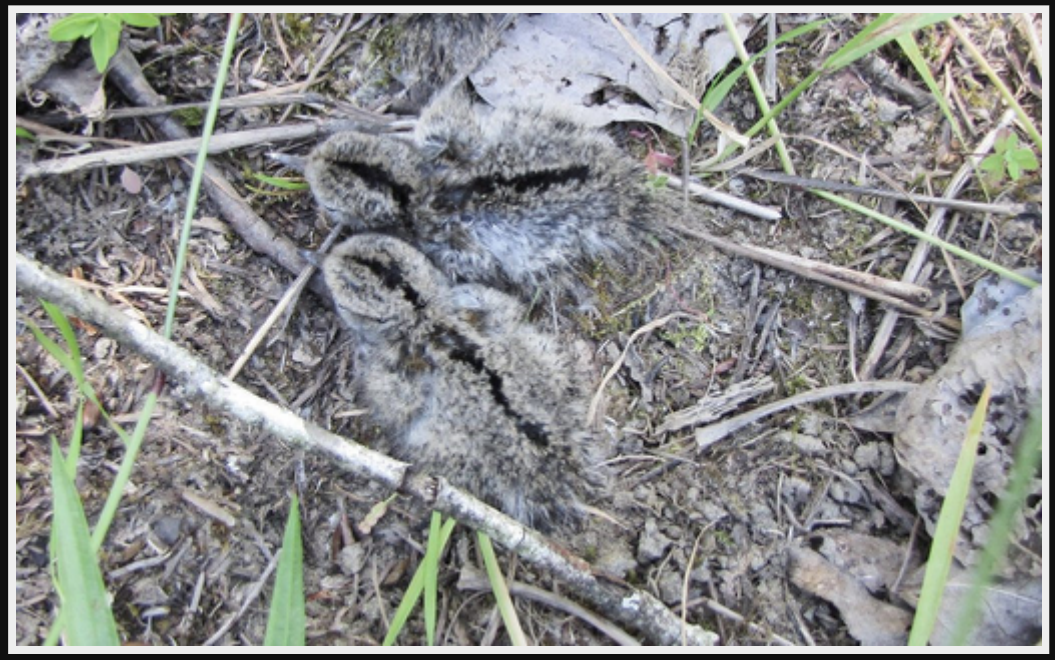
Crop Object and Label

```
bird 0.96
beak 0.93
fauna 0.91
wren 0.74
shorebird 0.65
sparrow 0.64
charadriiformes 0.59
seabird 0.56
wildlife 0.54
```

Problem #3

Detecting and labeling objects is not bulletproof.

Doesn't look like anything to me



```
fauna 0.85
grass 0.79
soil 0.65
```

After cropping

```
plant 0.74
grass 0.84
tree 0.53
```

Cloud AutoML Vision

train custom machine learning models

Solution #3?

I have not trained a model to distinguish camouflaged fauna from flora

...yet.

Demo

Birds, But Make It Spooky

@beachbirbys

Composite Indexes

(And helpful error messages!)

```
google.api_core.exceptions.FailedPrecondition: 400 no matching
index found. recommended index is:
- kind: Photo
  properties:
  - name: is_bird
  - name: last_tweeted
```

Problem #4

Where am I gonna host my scripts?

Solution #4

PythonAnywhere

What do you care about the normal amount?

What do you want to see?

What are you going to build?

Image Sources

- Bing Image Search API – filter by license
- Google Custom Search API – filter by rights
- Flickr API – filter by license
- Unsplash API – all images are licensed similar to CC-0

Cloud Vision API Features

- Face Detection
- Landmark Detection
- Logo Detection
- Text Detection
- Document Text Detection
- Safe Search Detection
- Image Properties
- Crop Hints
- Web Detection
- Label Detection
- Object Localization

What about video?

- Cloud Video Intelligence API
  - Label Detection
  - Explicit Content Detection
  - Shot Change Detection
  - Speech Transcription
- Cloud Natural Language API
- Cloud Translation API

Twitter

All new developers must apply for a developer account to access Twitter APIs.

Twitter

This request looks like it might be automated. To protect our users from spam and other malicious activity, we can't complete this action right now.

Mastodon

- API Documentation
- Client Libraries
- BotsIn.Space – an instance just for bots!

Build what makes you smile.

Inspirations

- @BirdPerHour
- @_everybird_
- @thegentleoracle
- @year_progress
- @Jbfletch_ebooks

Rachel Ramsay

Developer Avocado

@CloverPlatform

Find today's slides and code at

github.com/rayramsay/birbybot/

Photo Credits

- Spotted Sandpiper Chick by Claude Bélanger (CC BY 2.0)
- Threatened baby bog turtle (Clemmys muhlenbergii) by Rosie Walunas/USFWS (CC BY 2.0)
- Piping Plover Chicks by Joe Shlabotnik (CC BY-NC-SA 2.0)
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