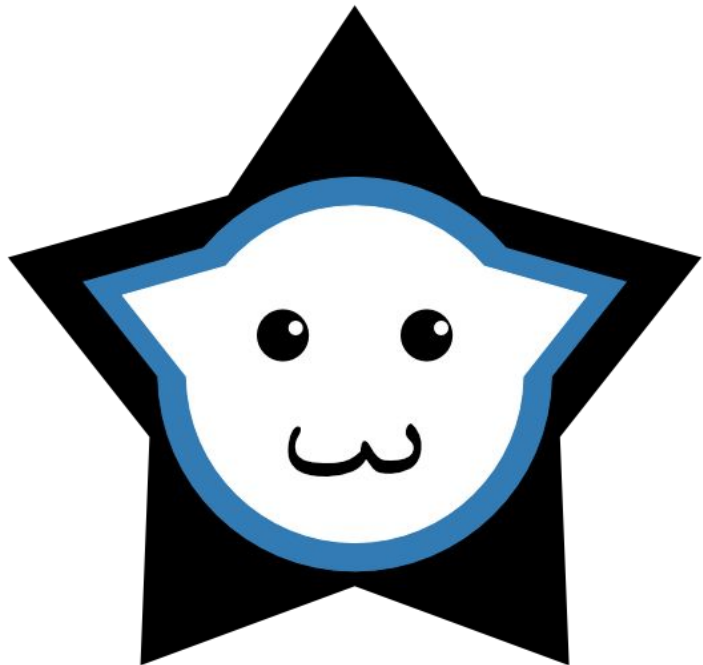# StarCat

DIY Constellations using Image processing

Science Hack Day: San Francisco 2017

Leo
Alexseyev

Matt
Bellis

Kris
Kooi

Syris
Norelli

Flip
Tanedo

The Goal

Upload your favorite **cat picture**

StarCat finds a set of stars in the night sky that **forms a constellation** of the cat!
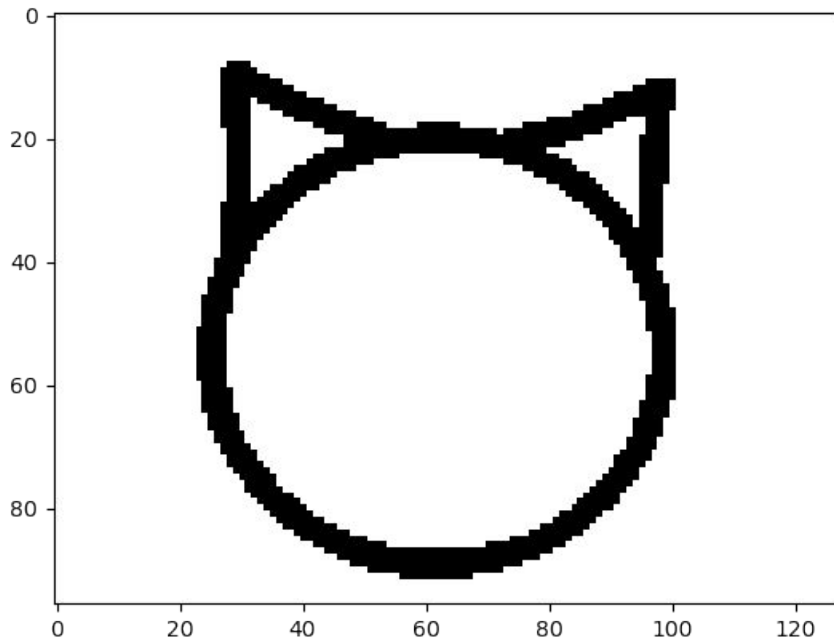
Brute force approach

Sketch a cat

Make a bunch of filters of different sizes and orientations

Move them around the "night sky" and do the multiplication/filtering **manually**

Determine, **manually**, a threshold for a match

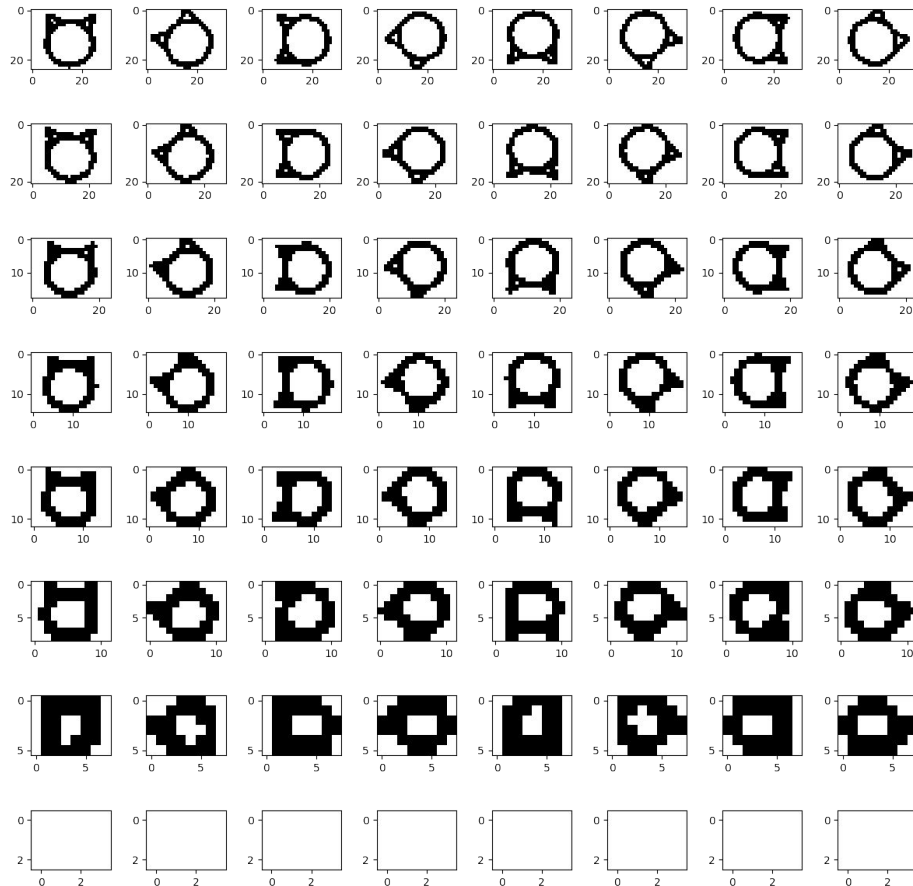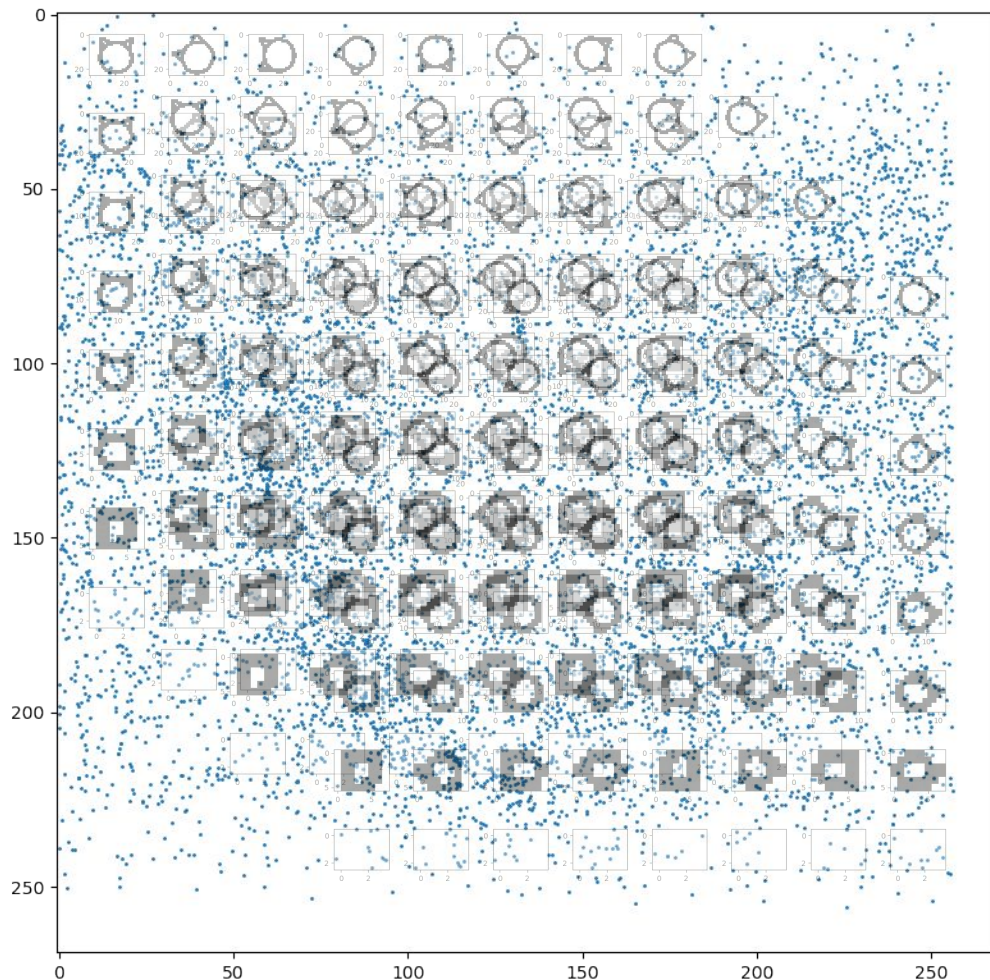Find the cats!

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Determine, *manually*, a threshold for a match

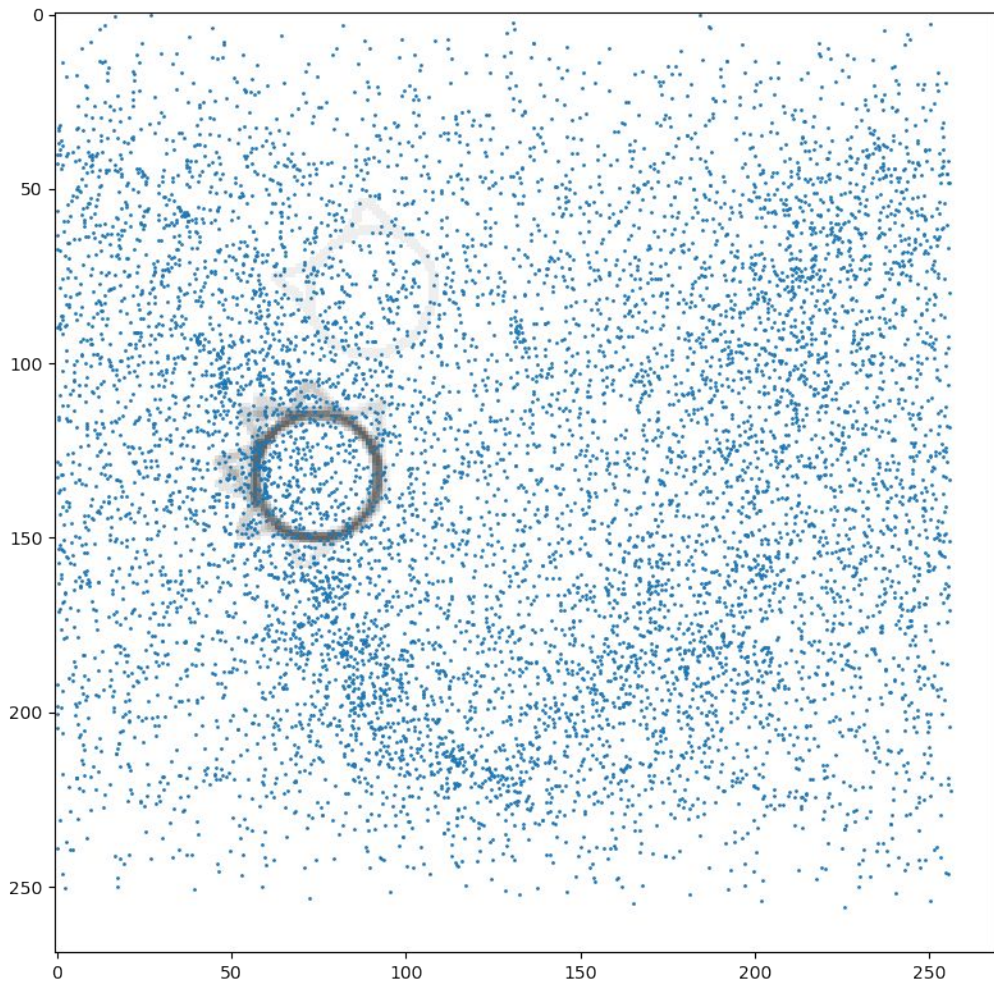Find the cats!

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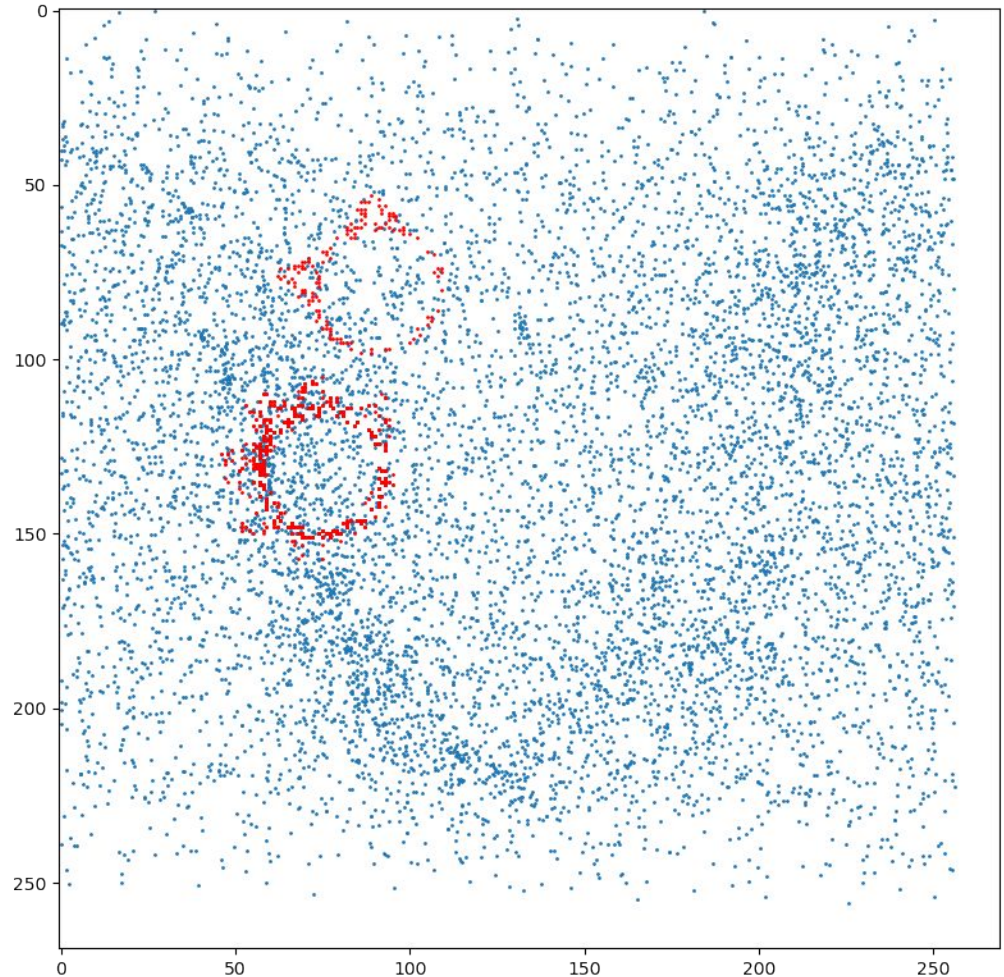Find the cats!

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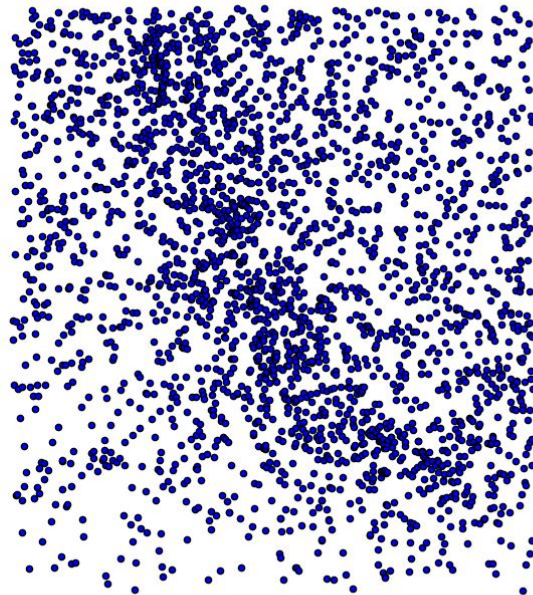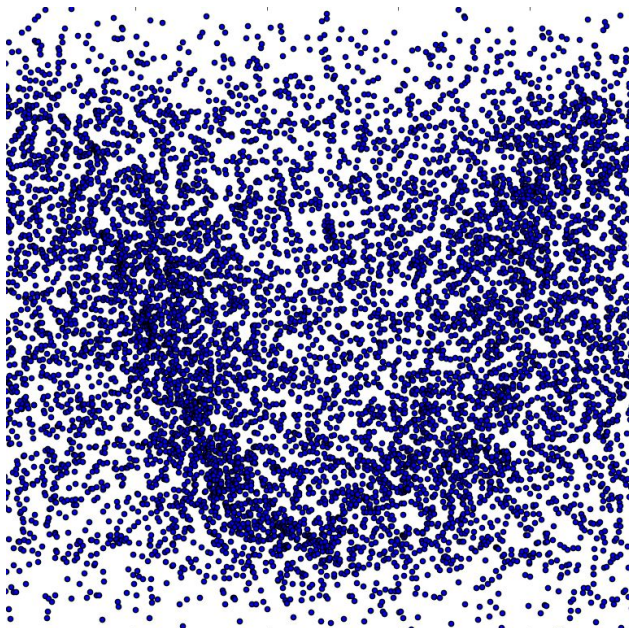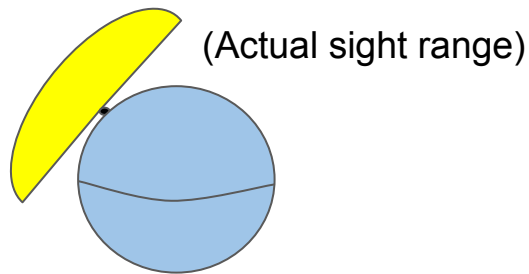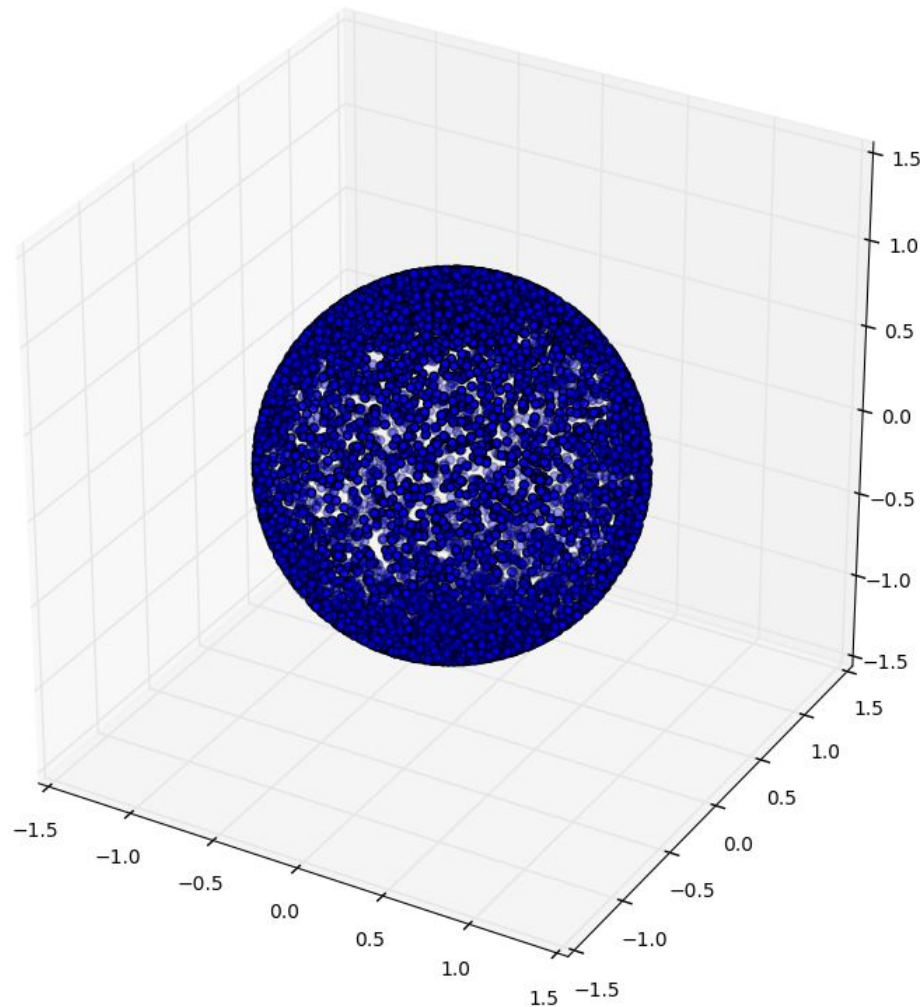Determine, *manually*, a threshold for a match

Find the cats!

Preprocessing Stars

People can't see through the Earth

The Earth is spherical

X-Y plots are not

(Actual sight range)

Preprocessing Stars
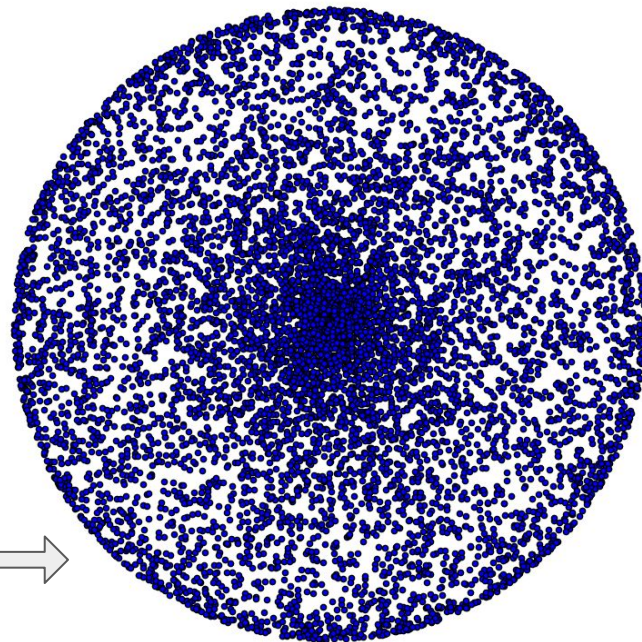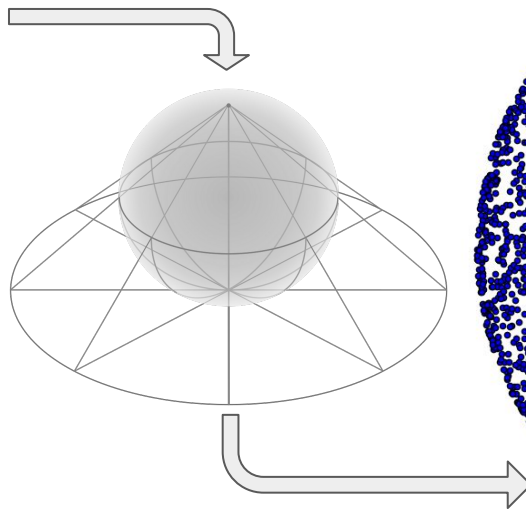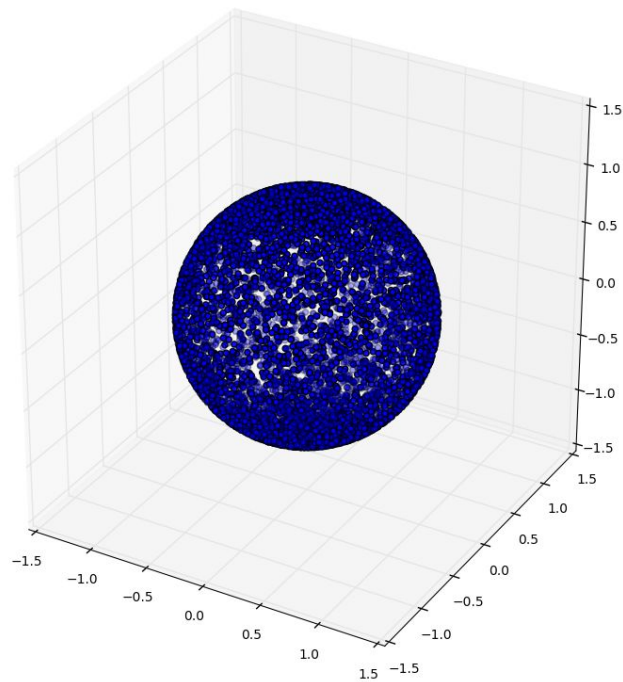
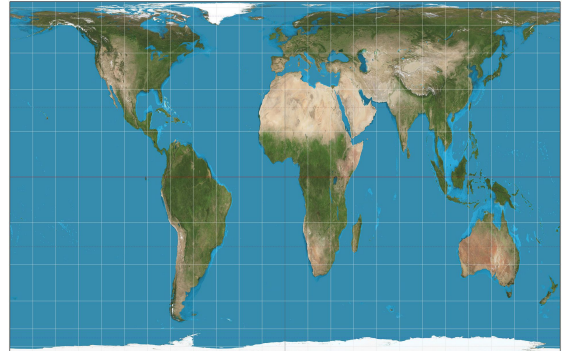People can't see through the Earth

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Preprocessing Stars

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Next Steps

- Improve image matching
  - Optimize for speed (for large star datasets)
  - Account for bigger/smaller cats
- Relate to visible night sky in SF
- Solve for distortion effects