Ground Truth

Groups at Cruise (Engineering)

AV Platform	Building the nerves and muscles of the AV
Core Infrastructure	Deploy highly scalable systems
Data Infrastructure	Enable insights from our extensive data collection
Data Science	Use our diverse data to improve business and engineering decisions
Engineering Productivity	Build a world-class development environment at Cruise
Ground Truth	Enable our AVs to understand the world
Mapping	Enable our AVs to navigate the world
ML Platform	Unlock ML development efficiency to accelerate our development
Product Engineering	Launch the world's best AV ridesharing service
Remote Assistance	Ensure we are always able to get the AV unstuck

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About Me

Victoria Lo

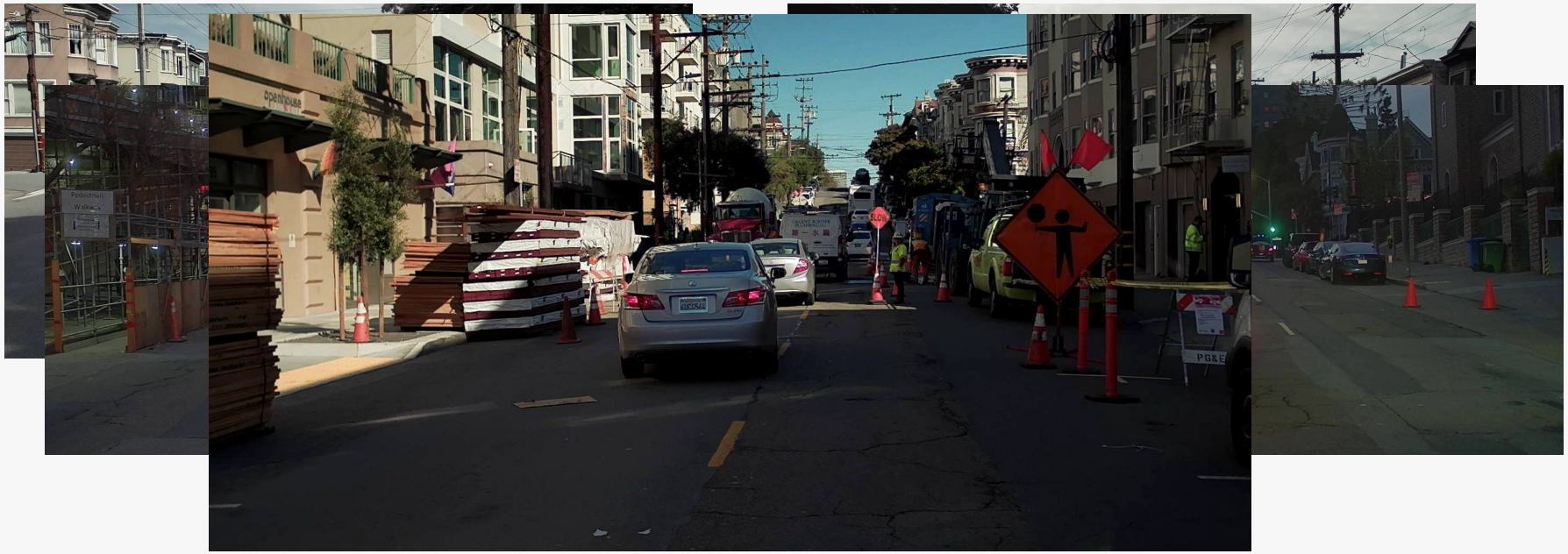
- Full-Stack Software Engineer
- Ground Truth Engineering team
- Been at Cruise for < 1.5 years
- Graduated UC Berkeley in 2015
- San Francisco Bay Area native, but familiar with the Toronto area/GTA

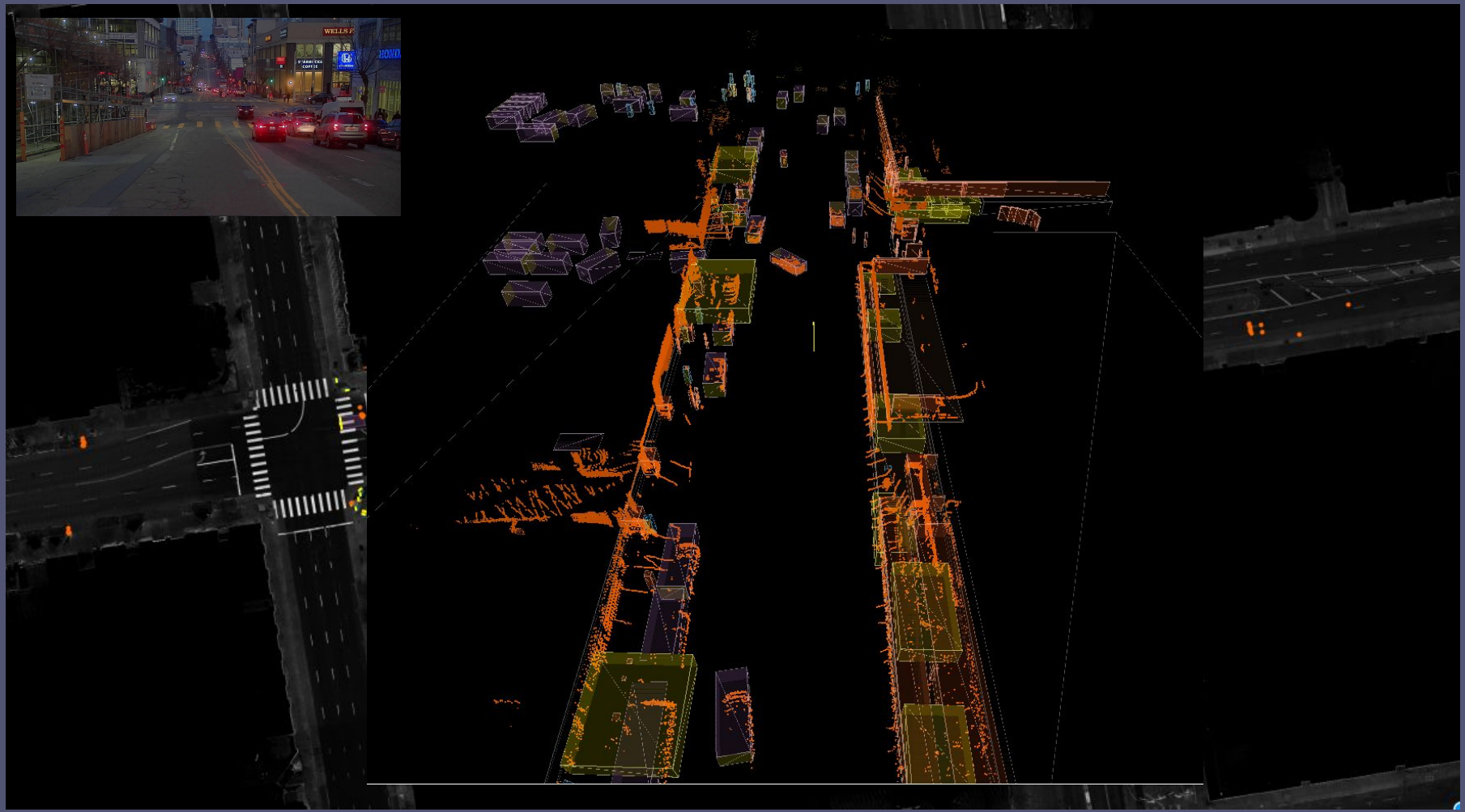
- How do cars know what they are seeing?
- How do machine learning models know what the “right” answer is?
- How do tests/QA know how to evaluate the car code?
- How does data science know what decisions to make?
- How do we know how well we are driving?

Ground Truth provides labeled data.

What's Ground Truth?

- Literally, the truth of what's on the ground.
- Let's peek at what the cars see...
- Camera:

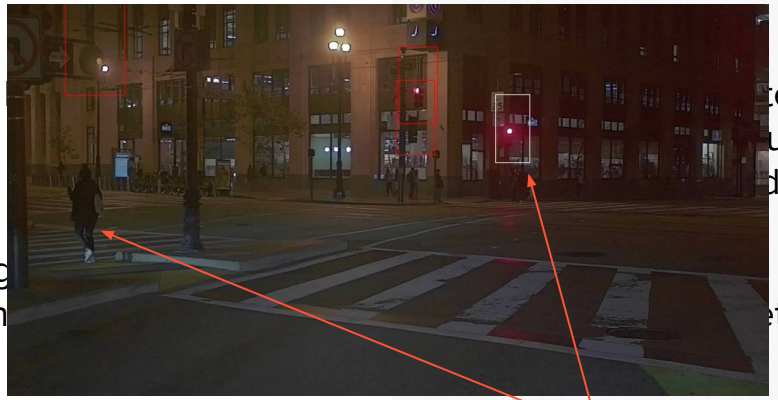



WELLS F
STARBUCKS
COFFEE
HONDA

Tools

Types of Labeling

- Clustering
  - Which points in this
    shape of this thing?
- Segmentation
  - Label all of this thing
  - What's the shape an
- Classification
  - Does this thing exist in the image? Or
    what is this thing?

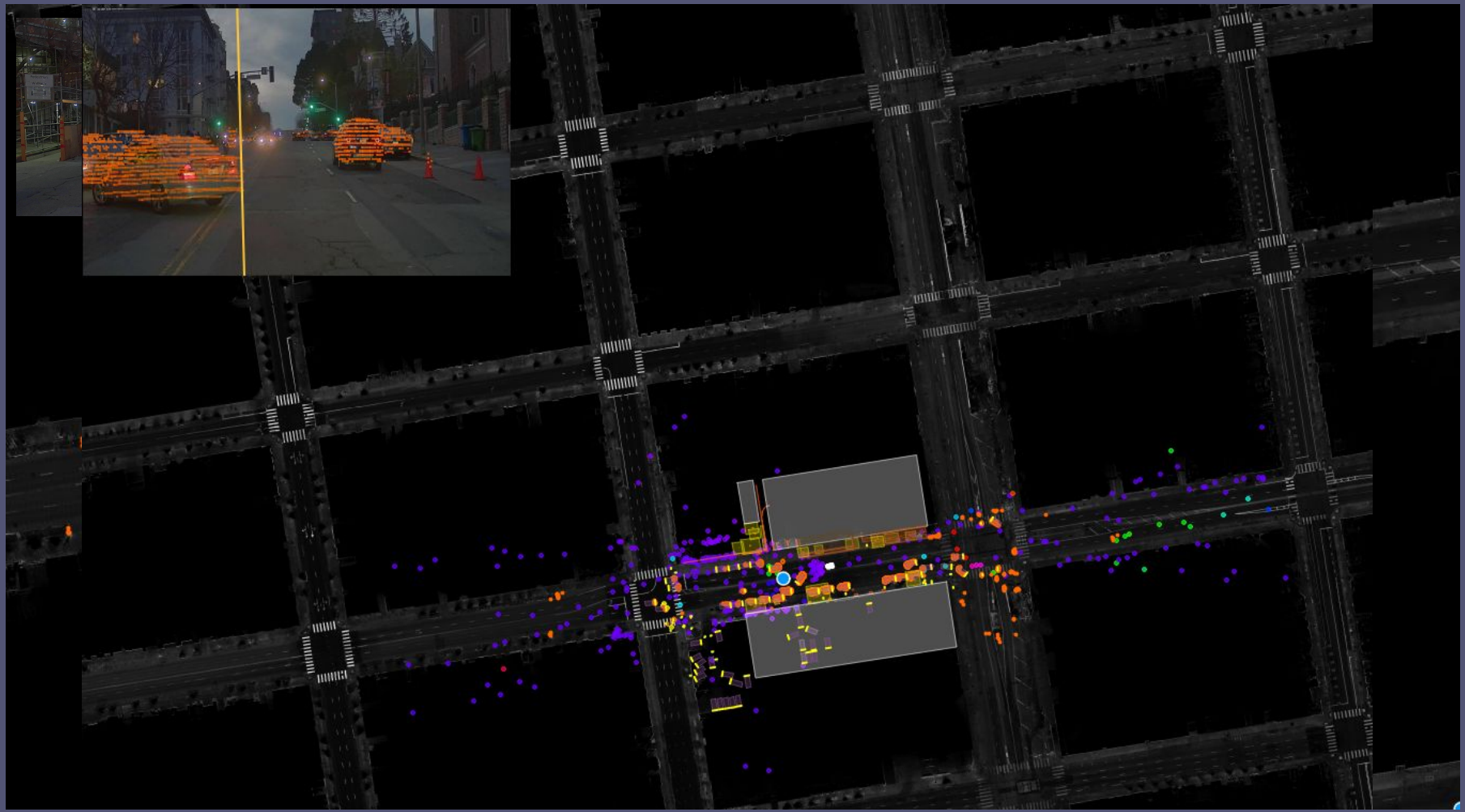


Sensors

- ection and Ranging
- uds!
- dy is a blob.

- etection and Ranging

- Camera
  - Photos!
  - Traffic lights, pedestrians, etc.
  - Everybody is a blur.



Teams/Pods in Ground Truth

Engineering

- Point Cloud (“PoClo”)
- Hollywood
- Data Foundation
- Platform
- REC (Ride Event Classification)
- Automation

Other

- Technical Program Manager (TPM)
- Product Manager - Technical (PMT)
- Operations
  - Point Cloud
  - Hollywood
  - Growth

Stack (Technologies)

Front-End

- React
- Redux
- Immutable.js
- Flow
- Three.js
- Openlayers/WebGL

Back-End

- Go
- Python
- Postgres & S3
- Docker
- AWS
- Google Cloud Platform - coming soon!

Why Cruise? Why Do I Love Cruise?

- Self-driving cars.
  - It's ***THE FUTURE***.
  - Ride free in a self-driving car and make your friends jealous!

- Delicious lunch and huge snack selection!

- Cool projects
  - YOUR work is going to contribute to self-driving cars!
  - We've had a Waterloo intern for the past few months on Data Foundation

- Cool, smart coworkers and awesome culture!
  - Memes and bubble tea ("boba") and Super Smash Brothers

- San Francisco is amazing
  - Pretty good weather: 45 - 85 °F (7 - 29 °C) in San Francisco year-round and no snow
  - Tons of food, hiking, Silicon Valley, Lake Tahoe, Napa

Questions?

Ask me anything afterwards!