




**Areté**

DISCOVER. DEVELOP. DELIVER.

# IARPA Video LINGS

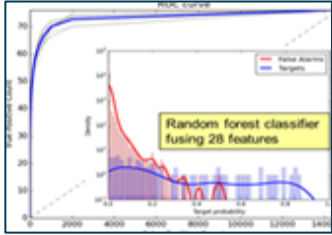
## Lightning Talk

**7 February 2024**

 <p><b>ARETÉ</b> <b>POCs</b></p>	<p><b>Tim Klein, Ph.D. (PI)</b> (256) 715-9572 tklein@arete.com</p>	<p><b>Colin Adams</b> (818) 885-4916 cadams@arete.com</p>
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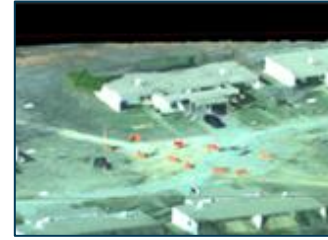
# Capabilities



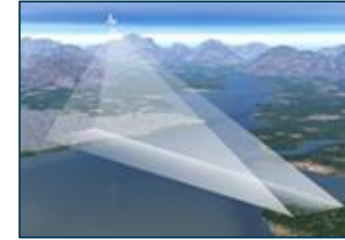
**Artificial Intelligence**



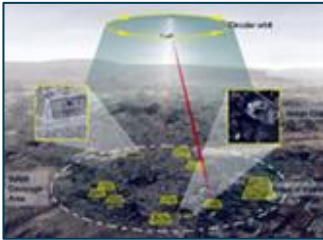
**Low Size, Weight, Power Sensors**



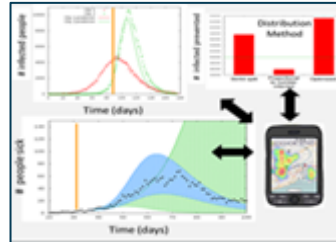
**Real-Time Processing**



**Remote Sensing**



**Deep Analytics**



**Networked Surveillance**



**Weak Signals  
Intelligence Applications**



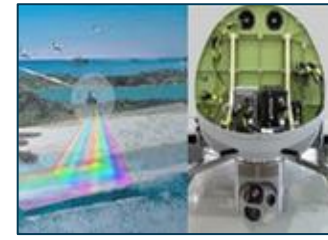
**Models and Simulation**



**Field Tests & Measurements**



**Rapid Prototyping**



**System Integration**



**Production**

## Statement of Problem

- NGA Phase I & II SBIRs under GovPI: Dr. Alex Gritai, NGA-R
- Comprehend systems of unknown traffic camera streams
  - Very little metadata assumed
  - All results performed on real traffic camera streams (i.e. no simulations)
- *We have lots of diverse video data already in-hand for further algorithm development—and we can get more!*
- Previous work on ReID (vehicles and people):  
<https://arxiv.org/pdf/2105.12056.pdf>

## Major Results

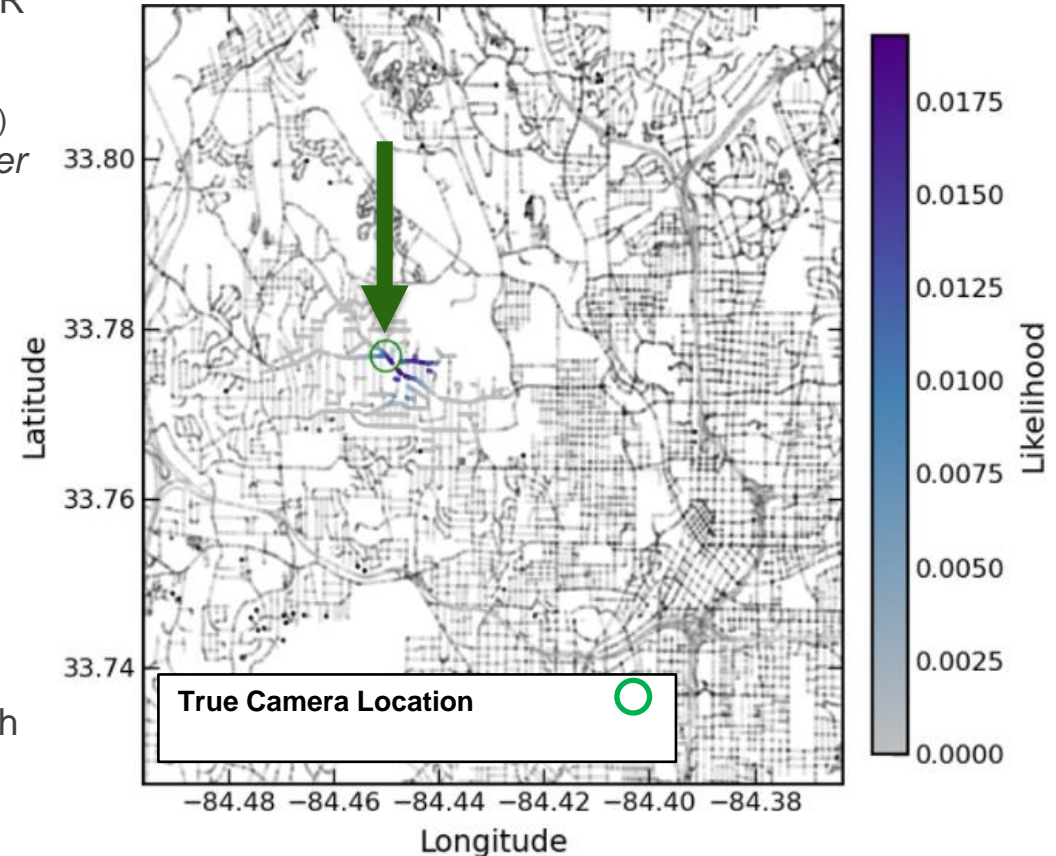
### CONOPS #1: Estimate of absolute camera location

- Median Offset Error: ~100–450m

### CONOPS #2: Road length required to search to find exact camera location

- Found 50% of cameras at 0.01–0.5% of possible road length searched
- Most probable road is the correct road 10–25% of time

## Example of Predicted Camera Location

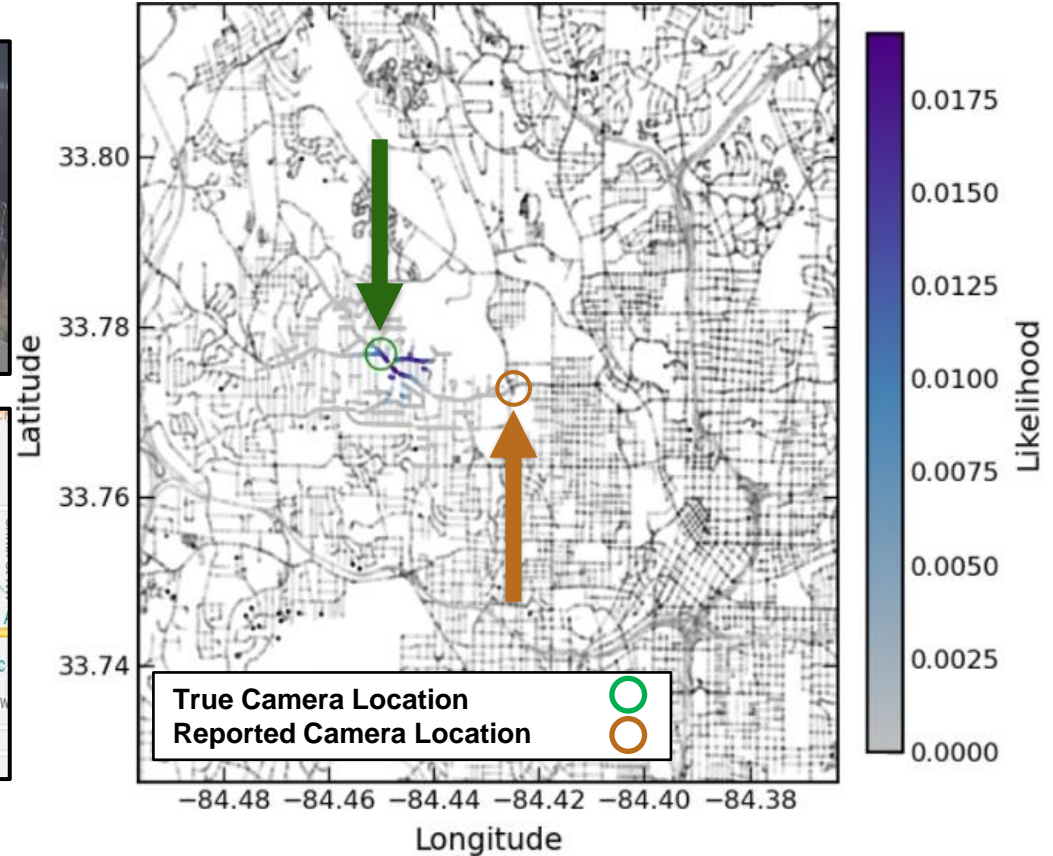
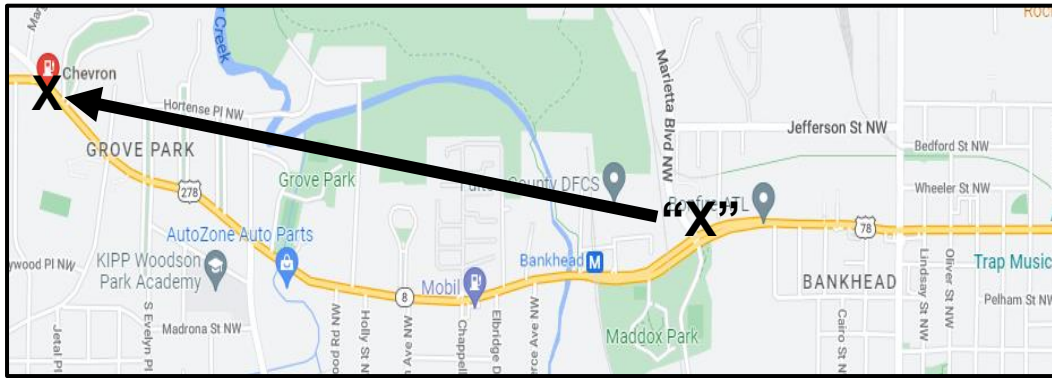
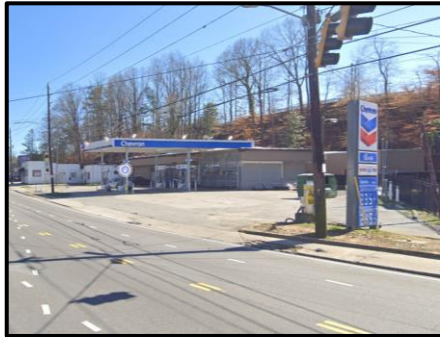


# Previous Work—Some Results

## Google Maps

## Recorded Footage

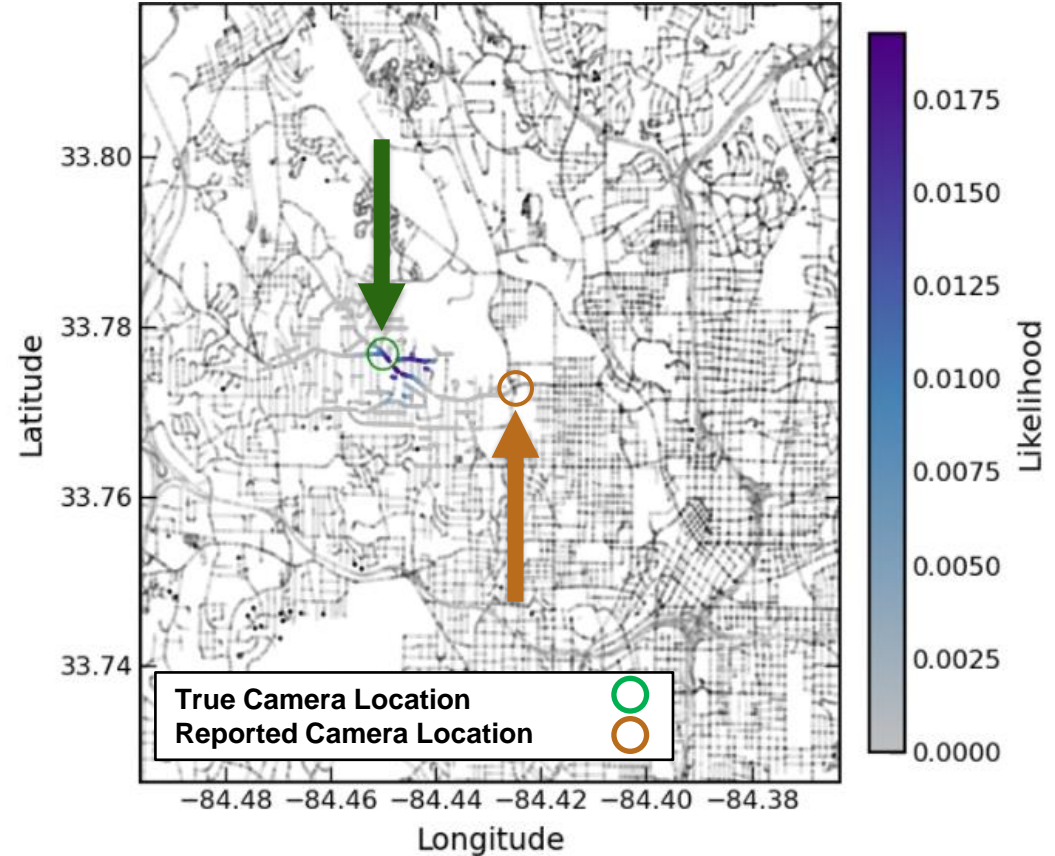
## Example of Predicted Camera Location



# Thank You!

## We would love to discuss teaming!

### Example of Predicted Camera Location



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