Week 3 Progress Report

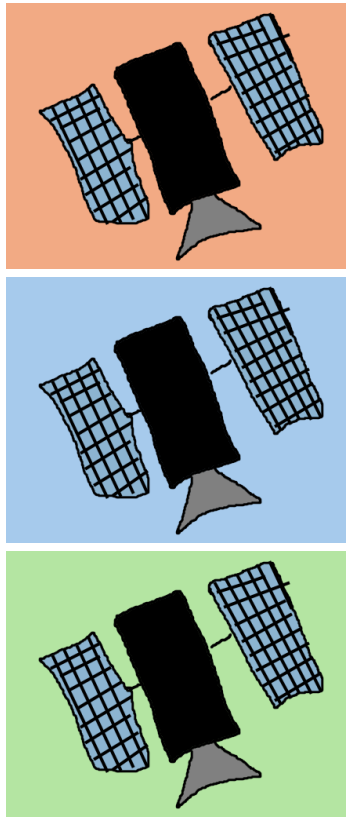
WRIVA Cross-View Geolocation (CVGL) Challenge

Wyatt Petula

(1) Recap **(2)** Progress **(3)** Results **(4)** What's Next

Recap of the WRIVA challenge

Satellites



Sites



https://geopera.com/blog/what-is-satellite-imagery

Ground Views

{ 77.23, 83.11 } ? { 73.49, 80.21} !



https://www.winetraveler.com/italy/best-things-to-do-in-venice-city-guide/

Geolocation pipeline: selecting per-site views



2048 x 2048



2048 x 2048

Geolocation pipeline: chip retrieval



2048 x 2048

150 x 150

Geolocation pipeline: predicting coordinates



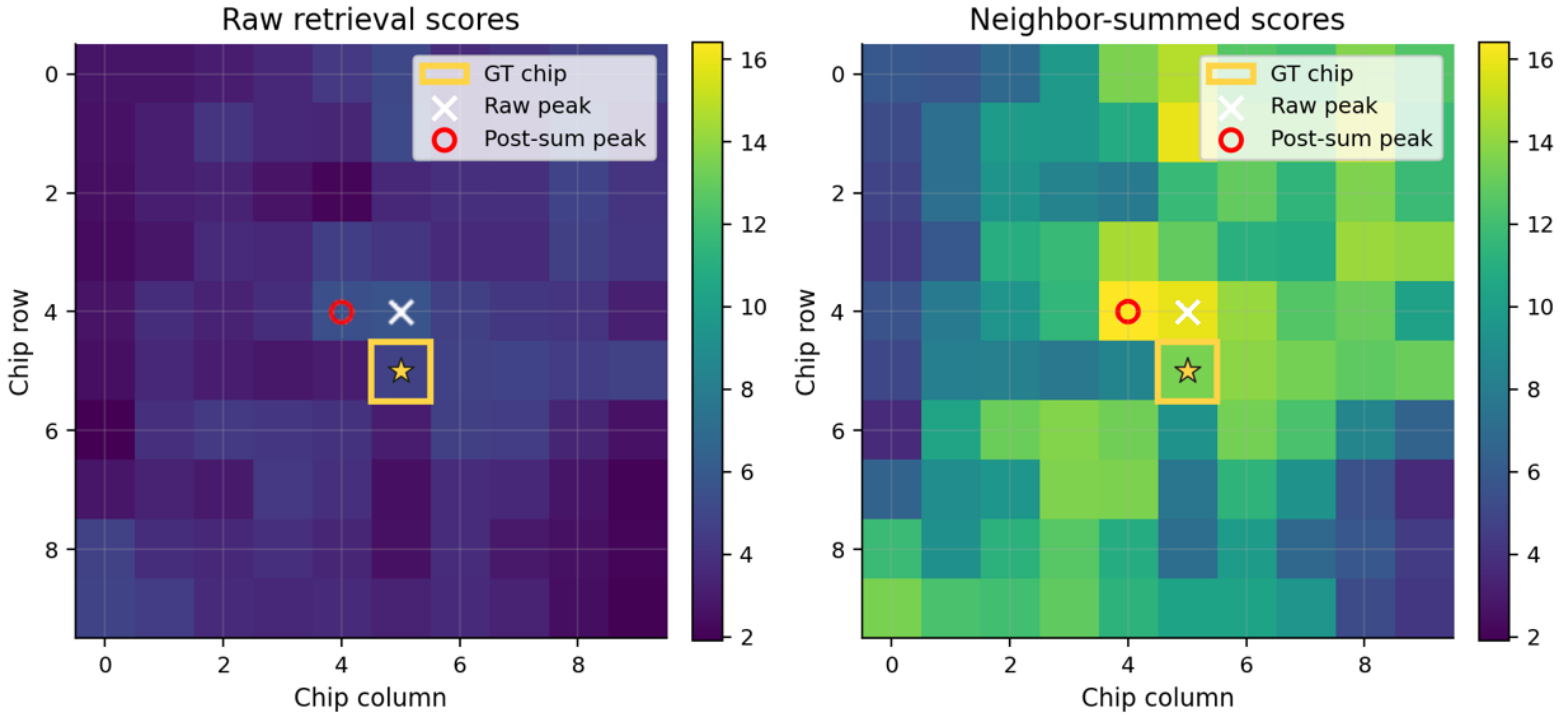
3024 x 4092



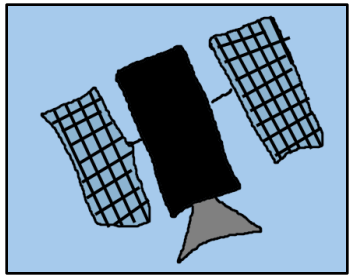
150 x 150

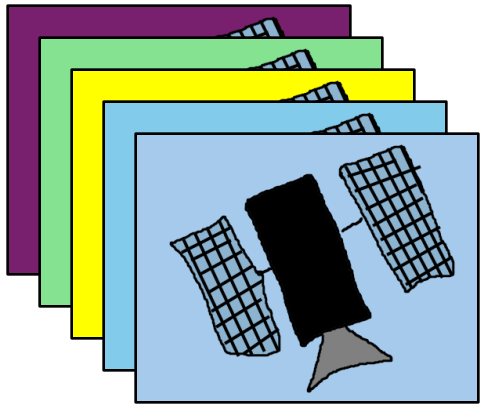
We evaluated the JHU APL WRIVA CVGL Baseline



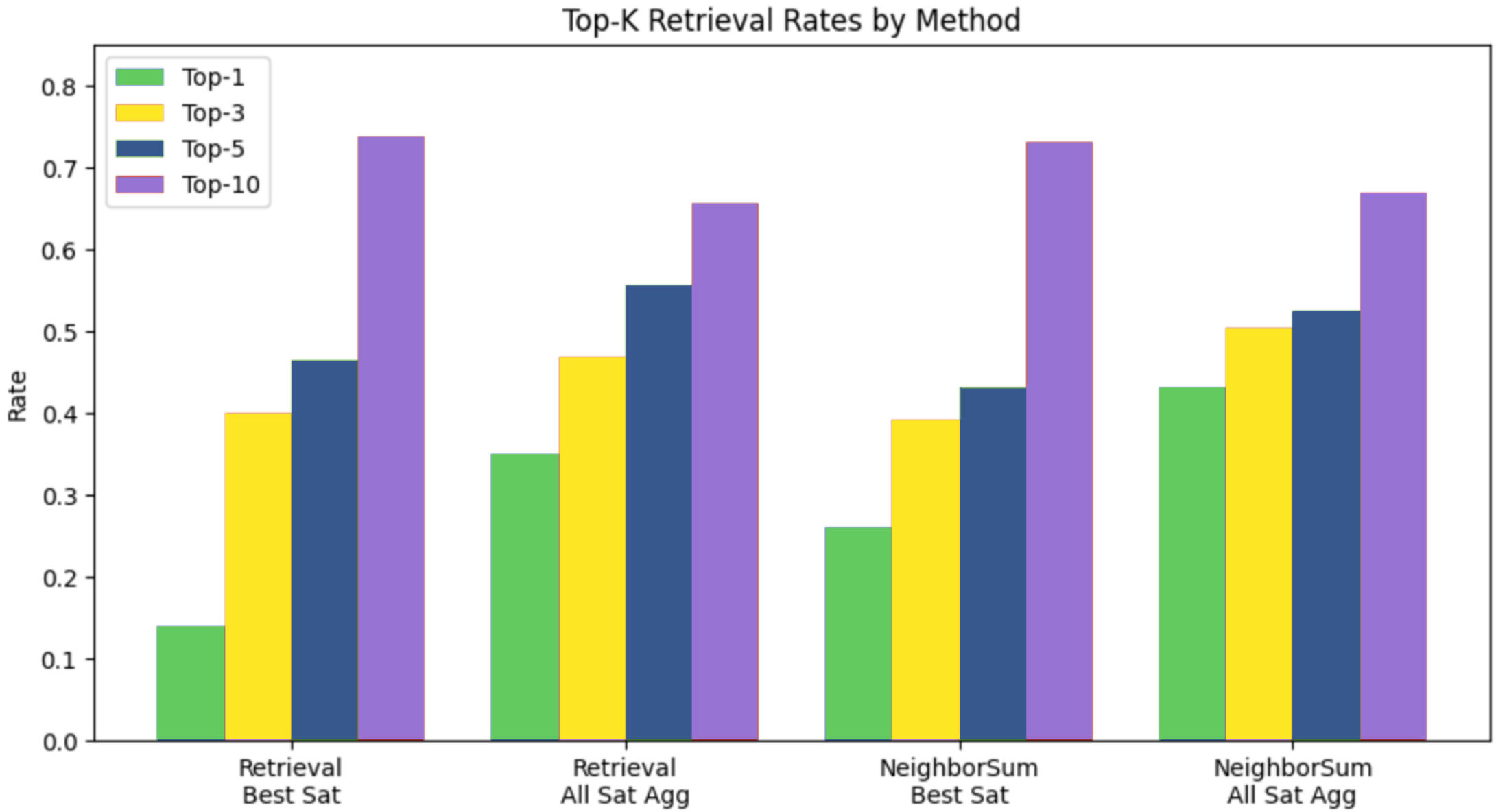


Per Image Cluster:

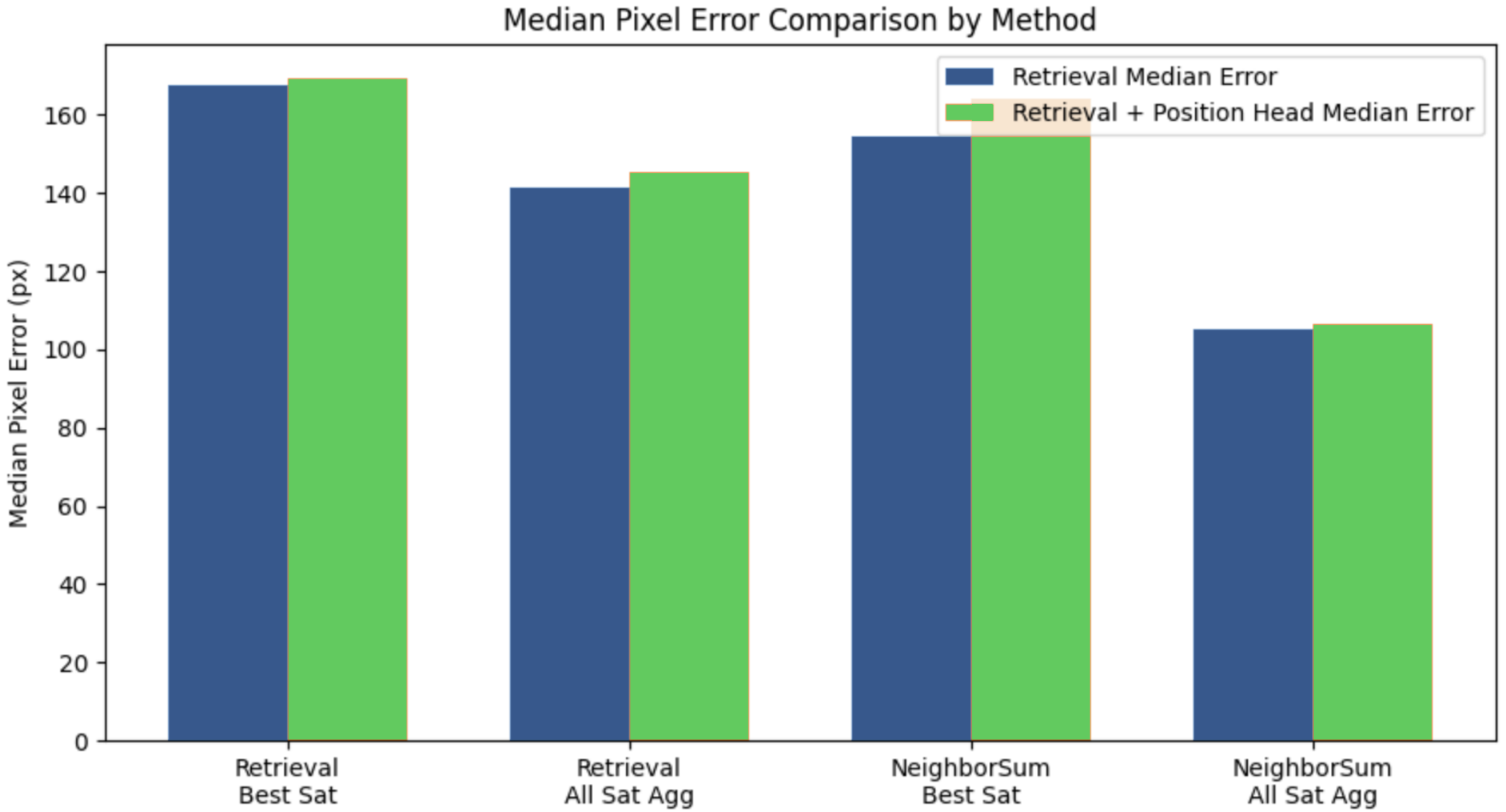




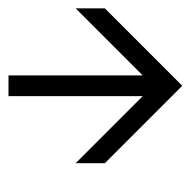
WRIVA Baseline results: Top-K Retrieval Rates



WRIVA Baseline results: Median Pixel Error

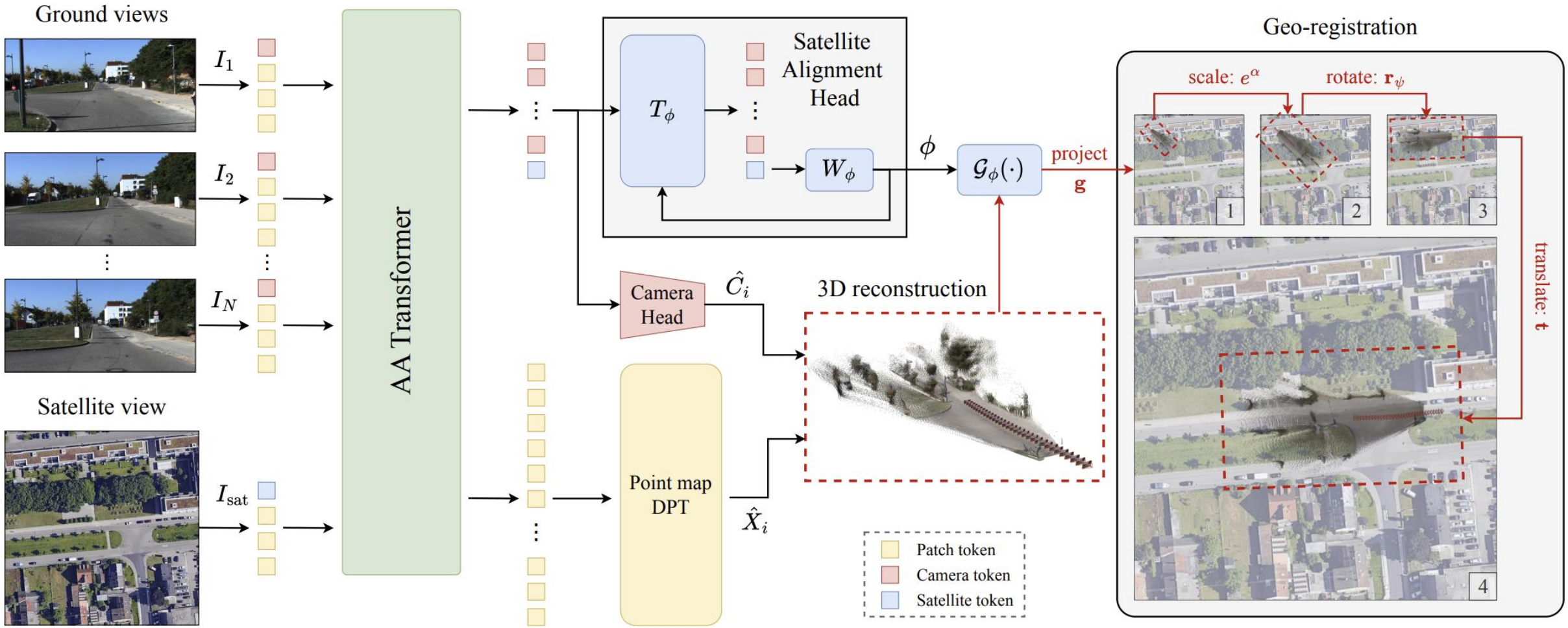


WRIVA Baseline results: Leaderboard Score



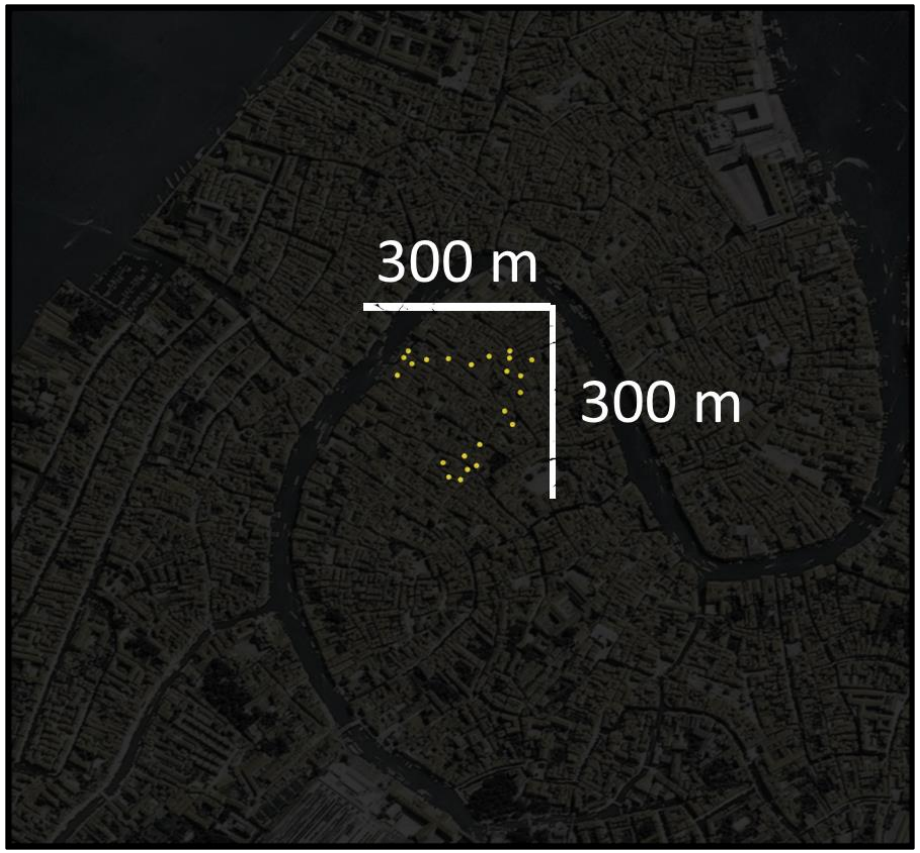
#	Participant	Date	ID	avg-geo
🥇	weilai	2026-06-05 23:43	782245	**174.26**
🥈	jkcarney	2026-06-05 13:50	781813	**199.3**

We are approaching the challenge with X-VGGT (Cross-View Visual Geometry Grounded Transformer)



We evaluated X-VGGT on the WRIVA Test Set

Training + Validation Set Observations



Evaluation Results

300 m Tile Center Crop

135.49

225 m Average Lat/Lon Crop

(W) 69.83, (S) 72.31

300 m Baseline + XVGGT Crop

153.76

We submitted the 300m retrieval attempt to the leaderboard

RESULTS

Task:				Test Phase Task								
#	Participant	Date	ID	avg-geo	001-geo	002-geo	003-geo	004-geo	005-geo	006-geo	007-geo	008-geo
1	SoumikG_UCF	2026-06-11 00:18	790827	**153.76**	97.18	153.54	126.21	132.9	136.1	198.57	124.56	156.0
2	weilai	2026-06-05 23:43	782245	**174.26**	284.96	60.74	145.15	151.28	211.51	161.88	125.02	232.35
3	jkcarney	2026-06-10 16:03	790497	**188.72**	187.41	161.19	180.21	204.87	209.94	101.56	219.31	155.85

We are working on our next steps in parallel

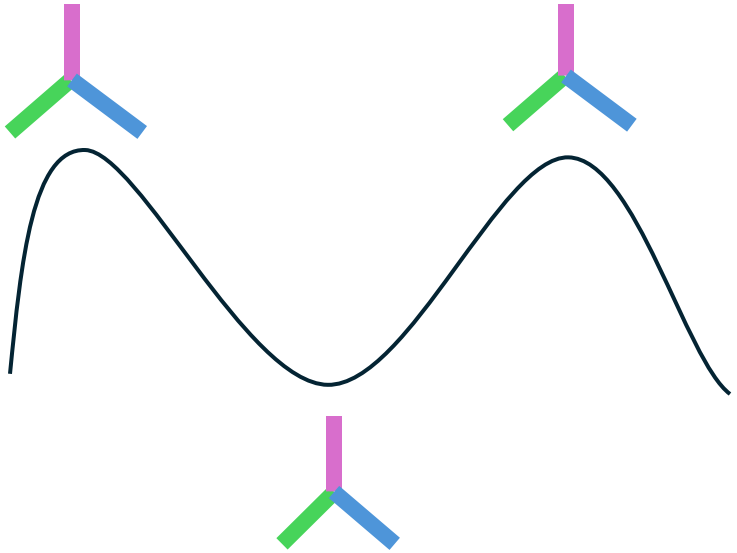
Wyatt

Fine Tune X-VGGT



Soumik

Probabilistic Head



Qingyang

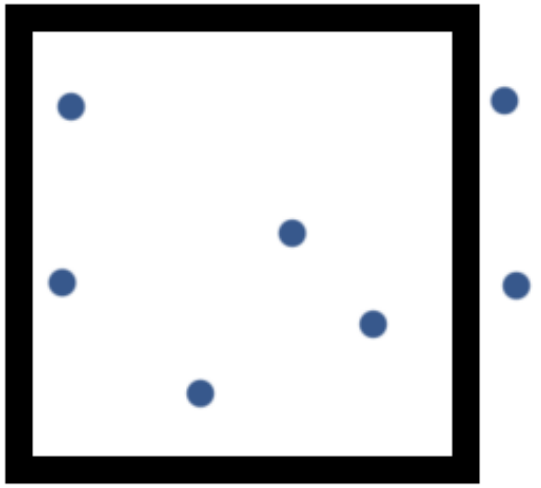
Retrieval



We are particularly interested in improving retrieval



Image Clustering



Loss of Detail



We are also exploring other approaches





We are also exploring other approaches

