

Face System Evaluation Toolkit: Recognition is Harder Than it Seems

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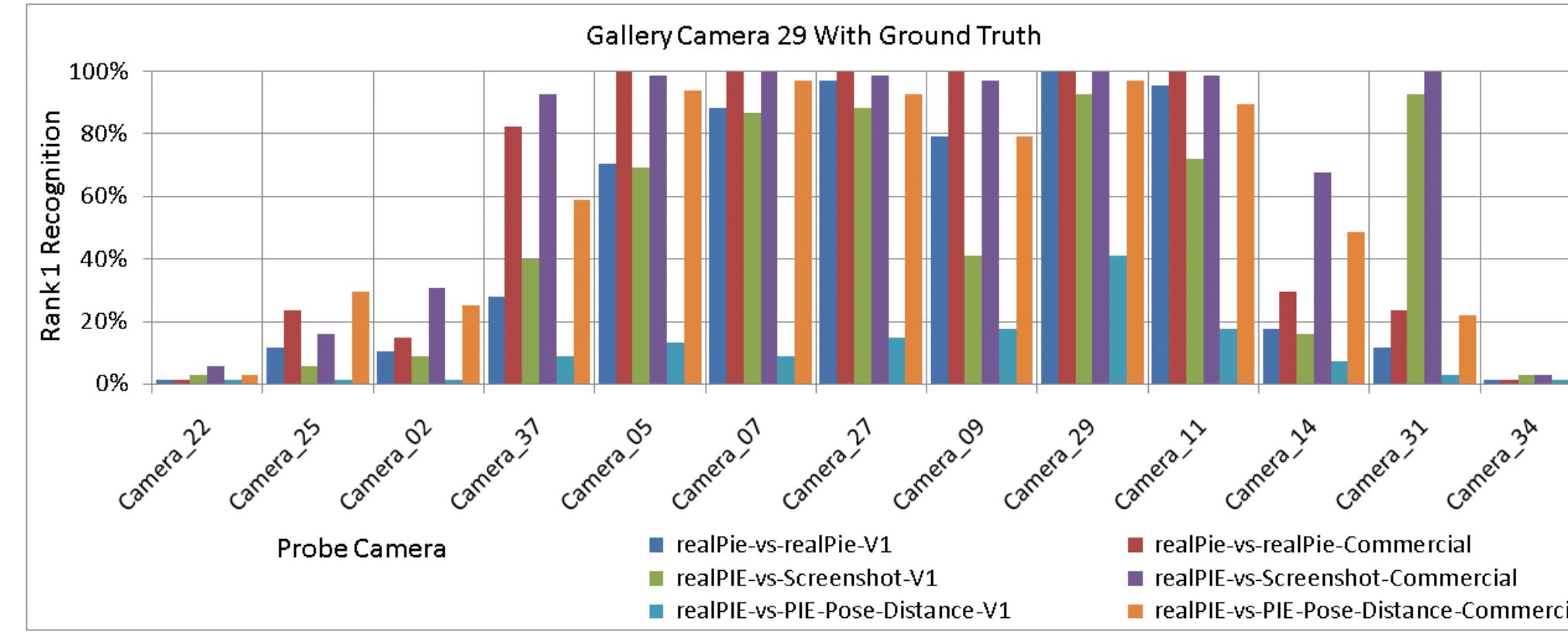
Our Contributions:

- Publicly releasable datasets that encompass
 - Distance (214 Meters)
 - Atmospheric Blur
 - Motion Blur
 - Pose
- We show how when removing groundtruth or cropping of the original image, recognition results decrease to below 6 percent even with a leading commercial algorithm

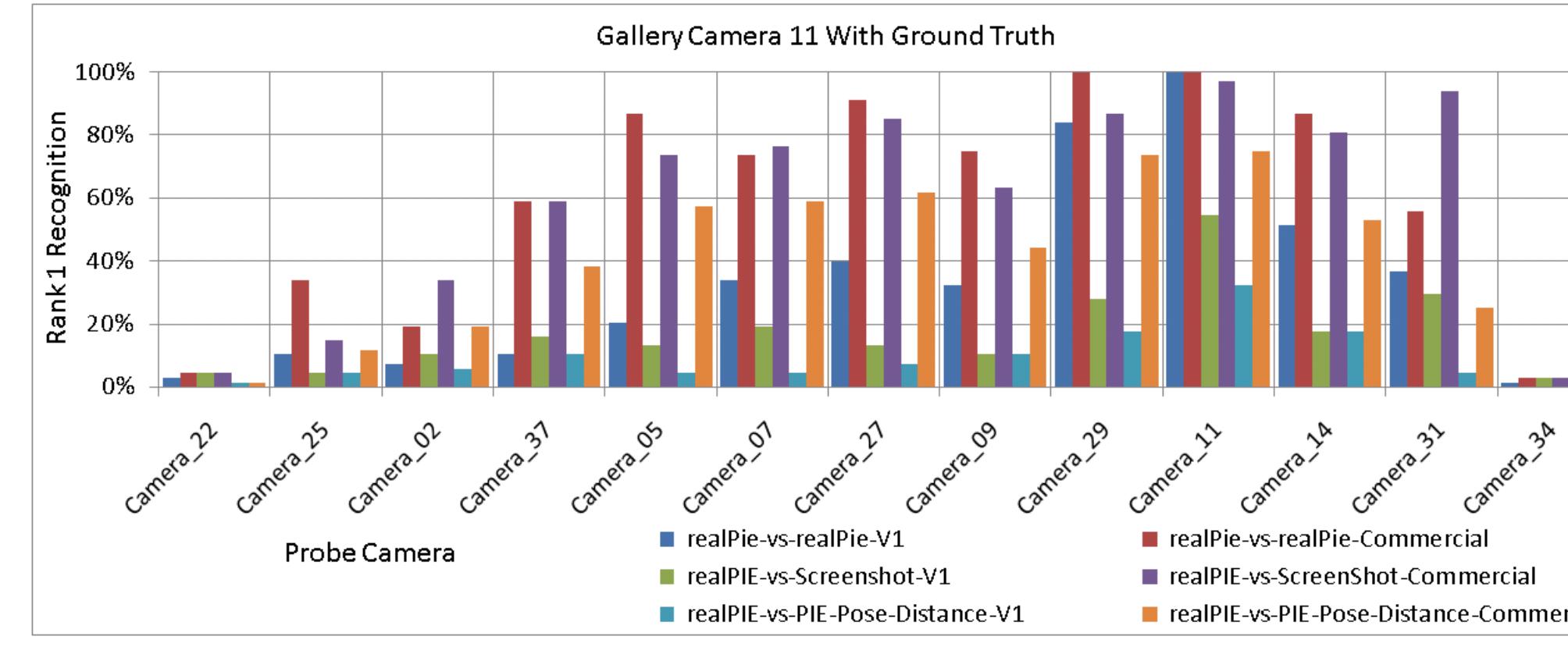


Visit <http://datasets.vast.uccs.edu> or e-mail datasets@vast.uccs.edu for more info on obtaining copies of the Synthetic PIE datasets and 3D models

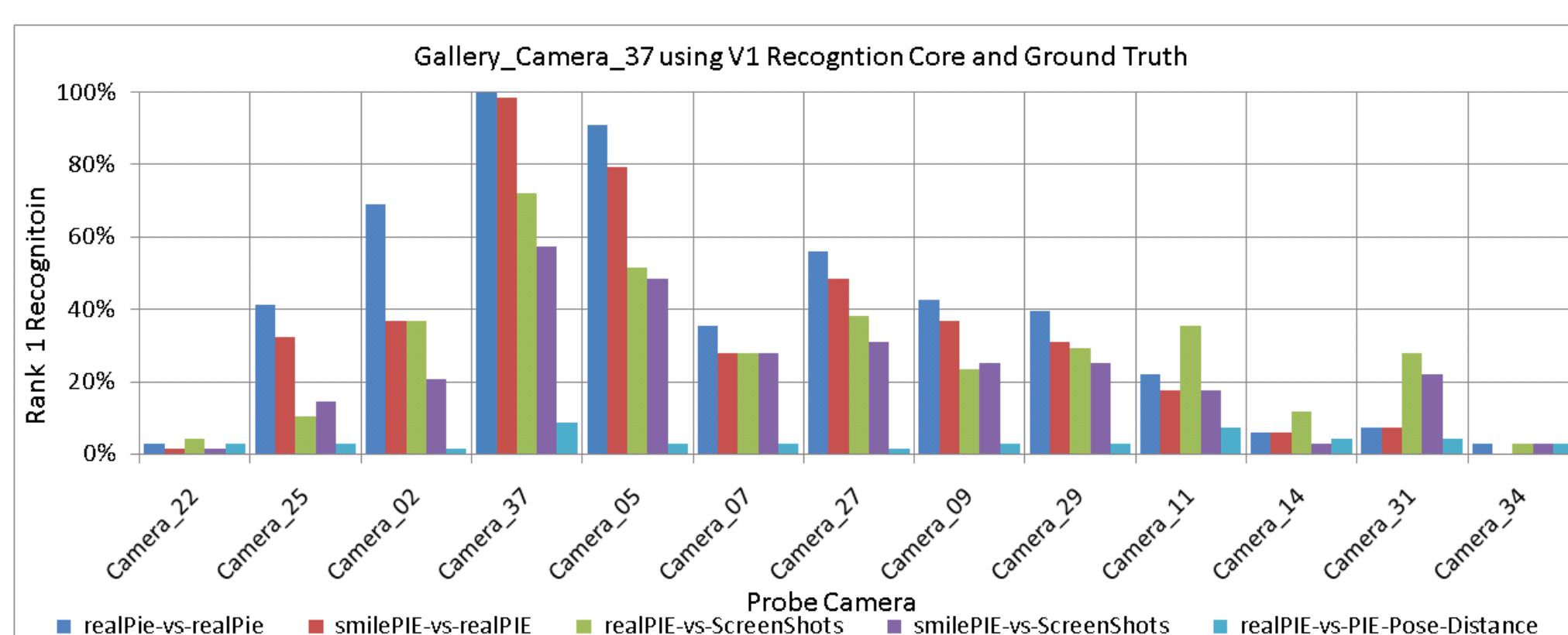
Long Distance Pose Dataset



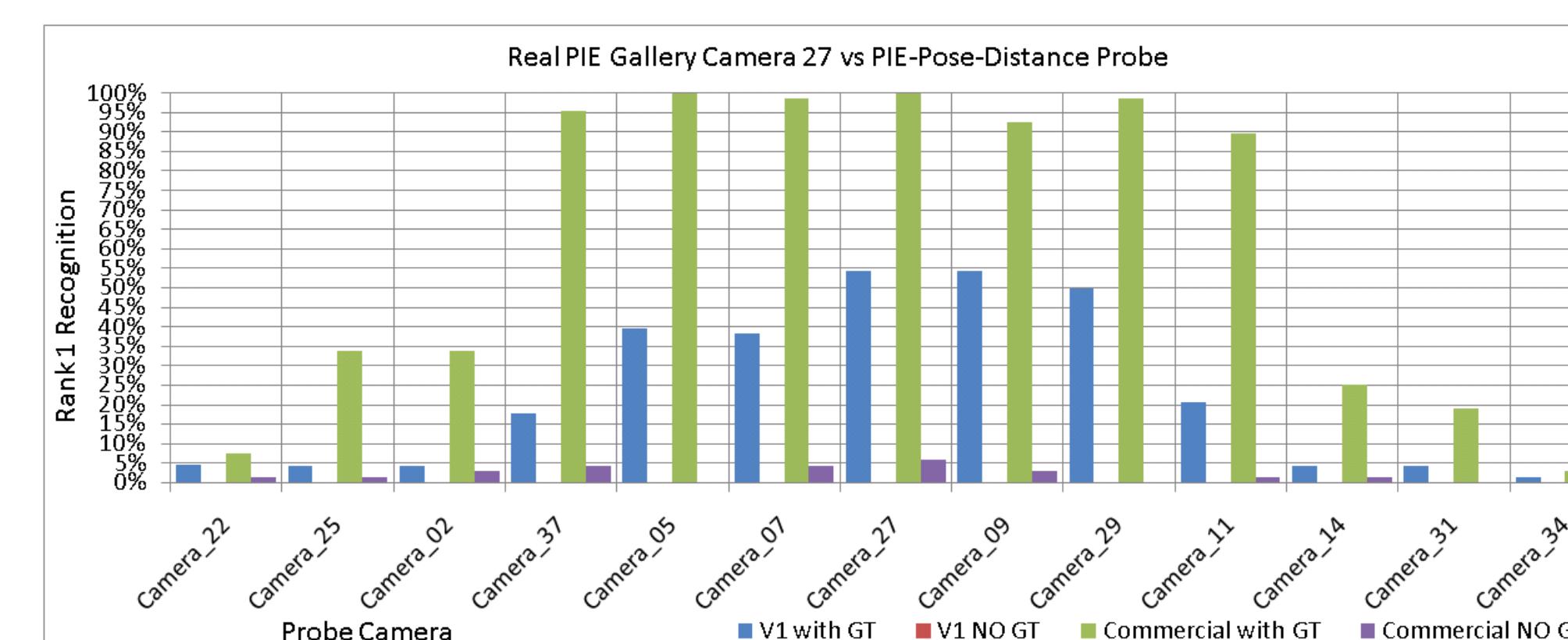
Graphs shows rank 1 recognition results of all 13 poses when camera 29 is used as the gallery. Both recognition core results are displayed in this graph. The notation for the key for the first three graphs is gallery-vs-probe. Indicating which set is used for the gallery and probes for that bar color.



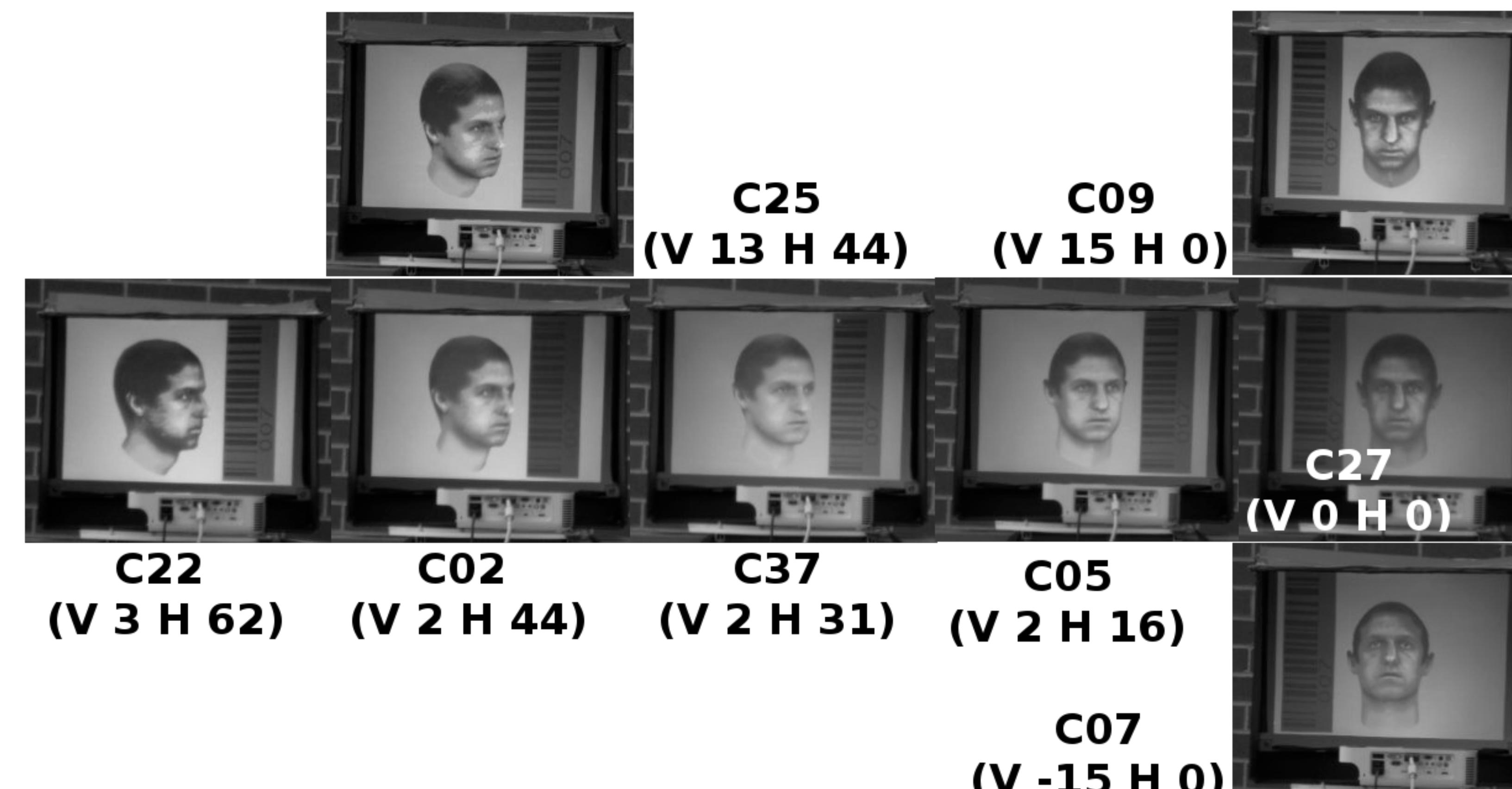
Graphs shows rank 1 recognition results of all 13 poses when camera 11 is used as the gallery. Both recognition core results are displayed in this graph. Even with only slightly more horizontal rotation than camera 29 we see a significant decrease in recognition rates.



Graphs shows rank 1 recognition results of all 13 poses when camera 37 is used as the gallery. This graph only shows V1 recognition results. Using a second subset of PIE shows similar recognition results when using .



This graph is only of pose distance set used as probes. It shows a comparison of both recognition cores results with and without using ground truth.



Long Distance Blur Dataset

ScreenShot



Indoor 81 Meters



Outdoor 214 M w/
Motion blur



| V1 | | | |
|-------------------|--------|-------|----------------|
| Dataset | GT | No GT | Cropping No GT |
| Blur Set | 47.76% | 0% | 26.87% |
| Camera27(frontal) | | | |
| Dataset | GT | No GT | Cropping No GT |
| Blur Set | 97.06% | %0 | %97.05 |
| Camera27(frontal) | 100% | %5.88 | %98.53 |

This table shows rank 1 recognition results for both recognition cores. When given the whole image, without any ground truth data, both cores fail miserably.



The above figure shows all of the 13 poses captured at distance, labeled with the camera #and Horizontal and Vertical rotation angles



Key References:

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- [12 of 25] V. N. Iyer, S. R. Kirkbride, B. C. Parks, W. J. Scheirer, and T. E. Boult. A taxonomy of face-models for system evaluation. AMFG 2010: Proceedings of the IEEE International Workshop on Analysis and Modeling of Faces and Gestures.
- [17 of 25] N. Pinto, J. J. DiCarlo, and D. D. Cox. How far can you get with a modern face recognition test set using only simple features? In IEEE CVPR, 2009.
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Sponsors :

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