## LaTTE: Self-supervised Latent Feature Maps for **Heterogeneous Pose Estimation**

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## **Keypoint repeatability for** heterogeneous detectors

The main challenge when dealing with heterogeneous feature detectors is that the same landmarks might not be found. This is called the keypoint repeatability problem. Traditional matching algorithms struggle in these scenarios. For interoperable pose estimation, if only features are shared and the keypoints are detected with heterogeneous detectors, robust results can not be guaranteed.





### Self-supervised latent feature maps



Original

Image



Features (keypoints and

UNet

Decoder Convolutional Layers



Reconstructed Image

Original Image



#### Features contain enough information



SIFT-Reconstructed Original Image

SuperPoint-Reconstructed

Images can be reconstructed from features with enough salient regions for accurate pose estimation.

## References

# LaTTE Feature maps SIFT **F** Latte + depth pose estimation **SuperPoint**

- Pittaluga, F., Koppal, S. J., Kang, S. B., & Sinha, S. N. Revealing scenes by inverting structure from motion reconstructions. CVPR 2019
- 2. Arnold, E., Wynn, J., Vicente, S., Garcia-Hernando, G., Monszpart, A., Prisacariu, V., ... & Brachmann, E. Map-free visual relocalization: Metric pose relative to a single image. In ECCV 2022



