VPR

- Image Retrieval
- Sequence Retrieval

Image / Instance → LiDAR odom & map
CLOAM

& Loc in LiDAR →

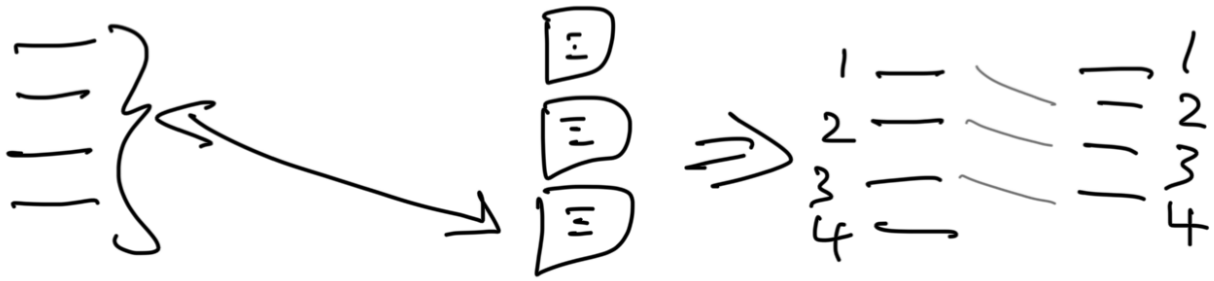
Only images

→ Coarse : approx

→ Fine Loc : R, t estimate, LC in SLAM
↳ PnP : R & t

Sequence retrieval

Qu: Single or Seq DB: Seq



→ B.O.W. for each DB item from seq. of images

Discussion

Modalities: Camera, LiDAR, IMU, GPS/GNSS

Indian roads setting:
→ Imp. points are lost (occlusions)
→ Errors in readings

Downstream tasks:
→ Semantic scene understanding
  ↳ Scene graph / Map
    ↳ BEV

Todos - 1

1) Benchmark algos (driving)

Structured
→ Oxford
→ nuScenes
→ Mapillary
→ SF-XL

Unstructured
→ IDD (CVIT)
→ Chinese datasets?

→ VLAD-based : Inspect clusters across
↑
→ HeapUtil : Analyse VLAD

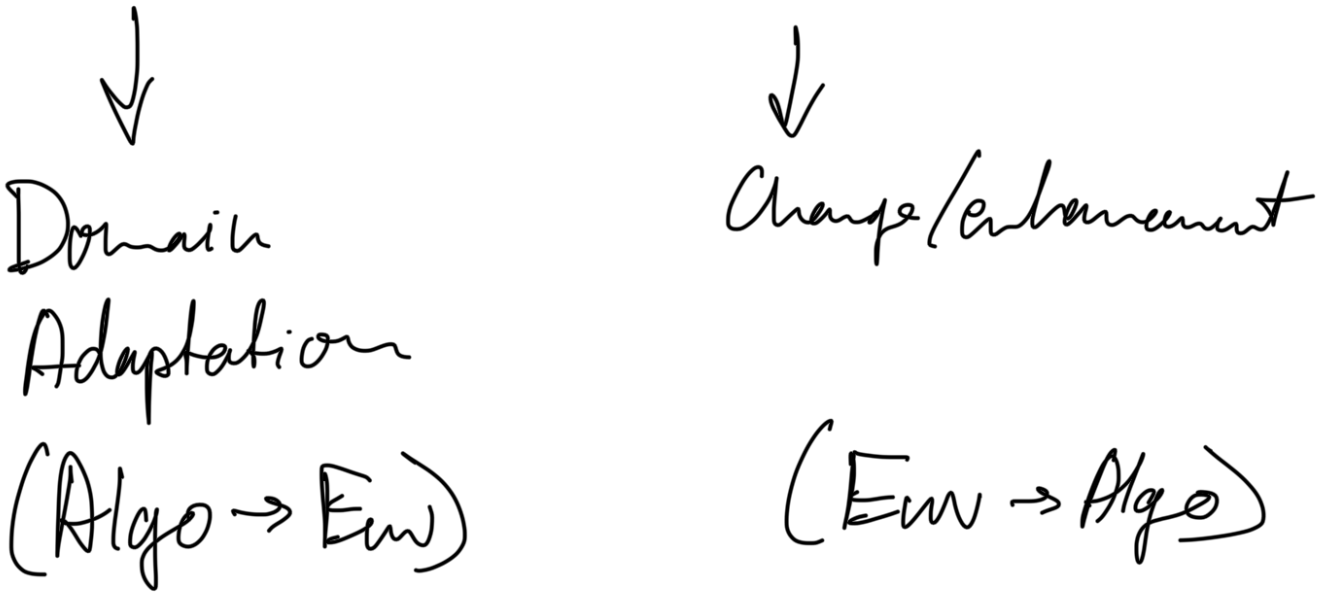
→ GeM pool

→ MixVPR, CosPlace → GD

→ GradCAM
→ Attention

Hypothesis T/F ?

#1 → Domain Shift



Todos - 2

2) How to close gap

(using as little multi-modal sources)

→ Can LiDAR help?

→ IMU/odom