

# A scene is worth a thousand features:

Feed-forward camera localization  
from a collection of image features



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## Mapping

Building the Scene Representation

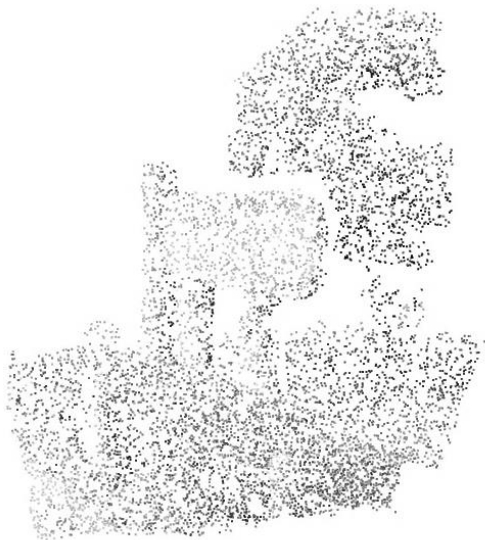


## Re-Localization

Register Query Frames

# Mapping

Building the Scene Representation



# Re-Localization

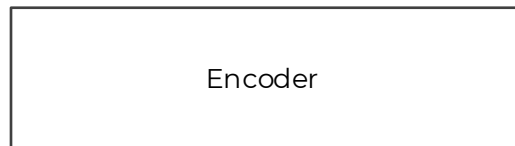
Register Query Frames



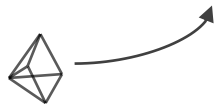
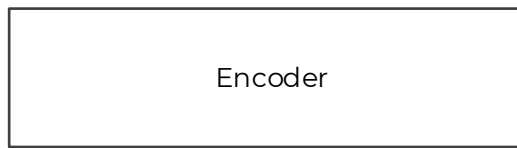
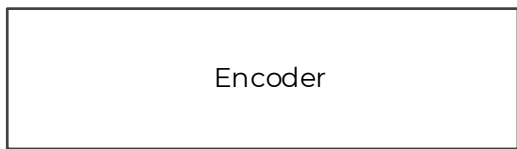
Mapping image



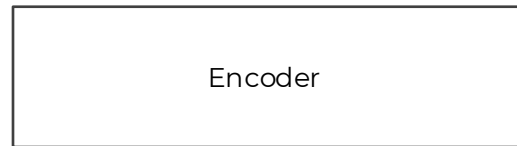
Query image



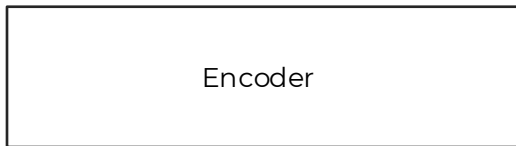
Mapping images



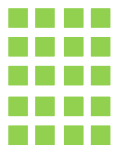
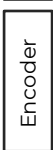
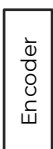
Query image



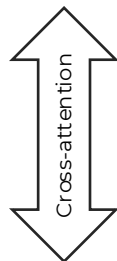
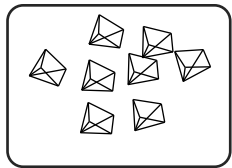
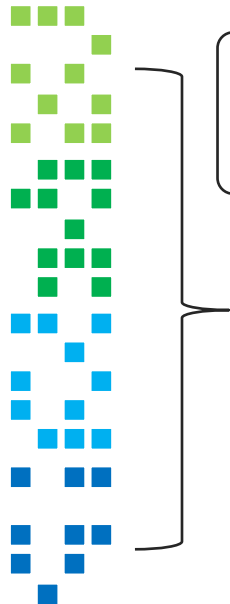
Query image



Mapping images



Sub-sample

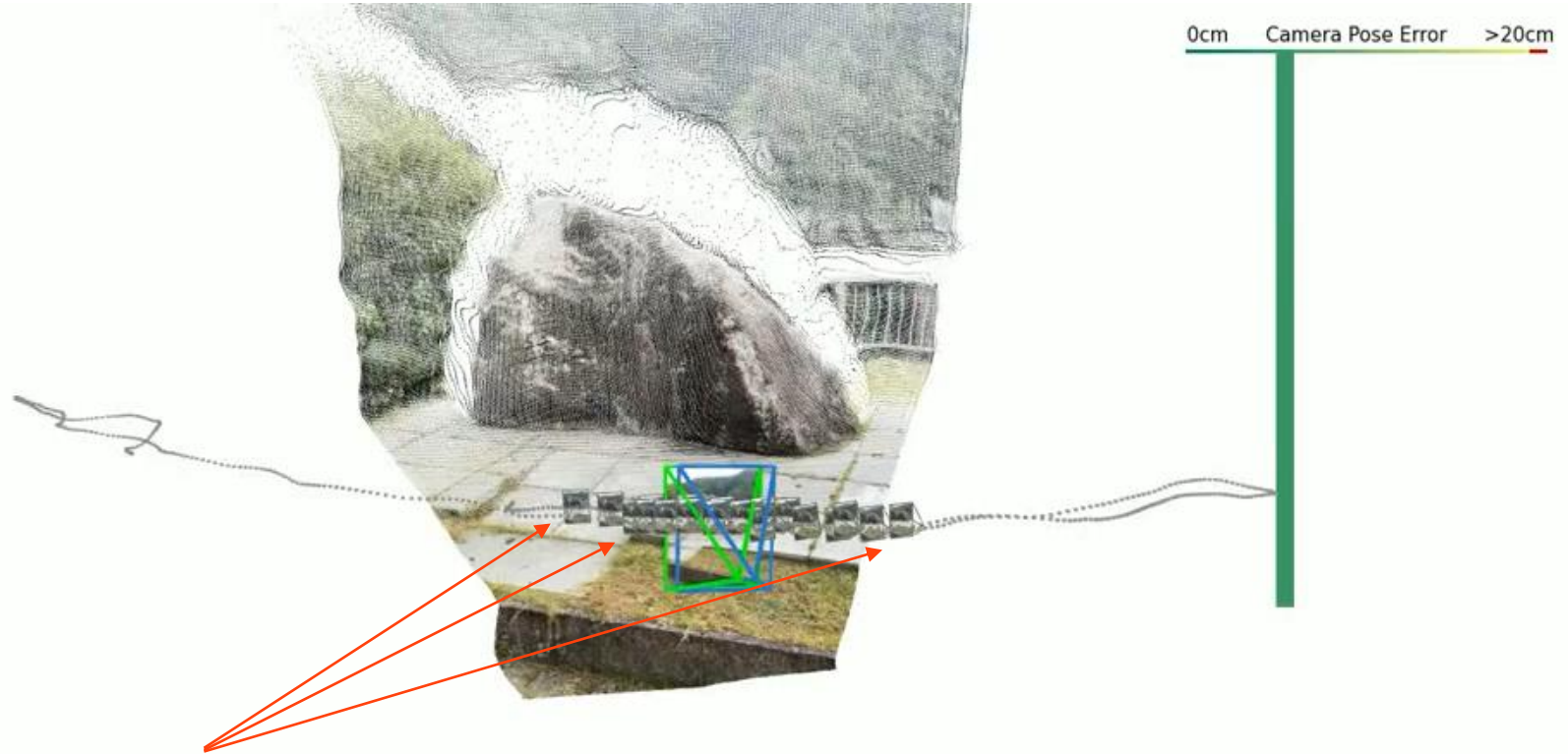


# FastForward



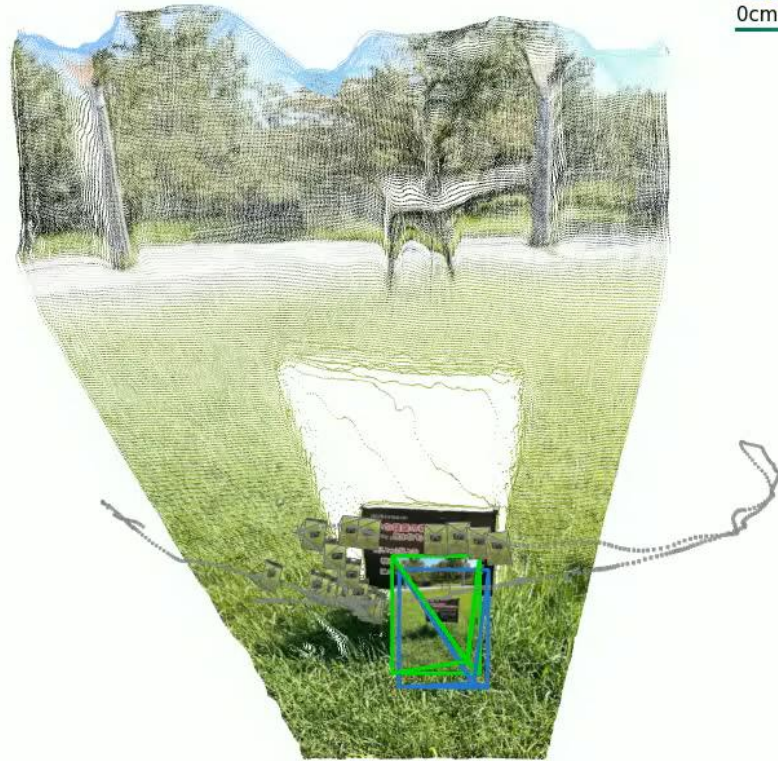
■ Ground-truth ■ Estimate

# Start Localizing from Tracking Poses



Select mapping images based on image similarity

# Robust to Challenging Scenarios

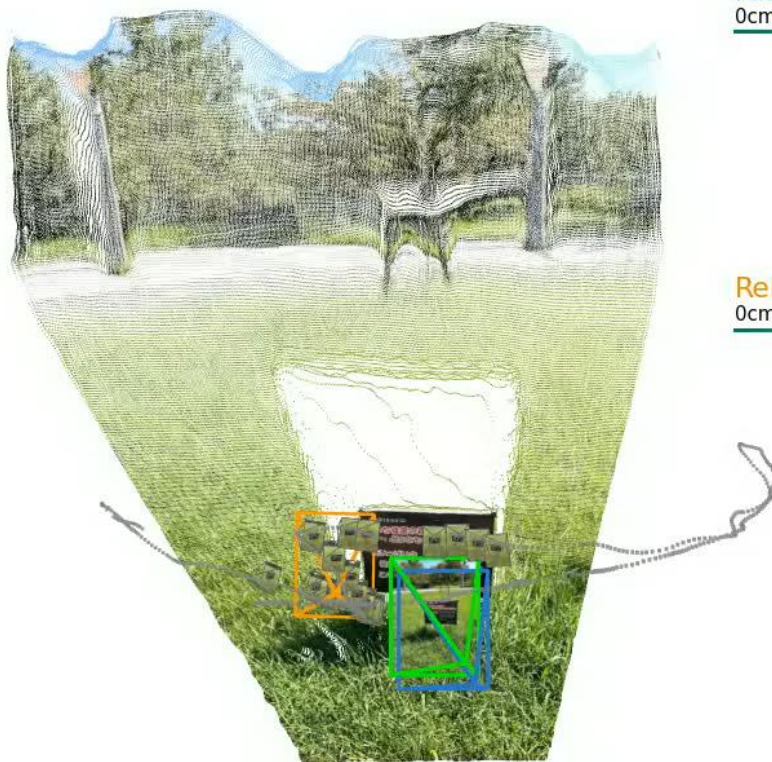


FastForward

0cm Camera Pose Error >20cm



# Robust to Challenging Scenarios



FastForward

0cm Camera Pose Error >20cm



Reloc3r

0cm Camera Pose Error >20cm



# Robust to Large-scale Scenes

FastForward

0cm Camera Pose Error >50cm

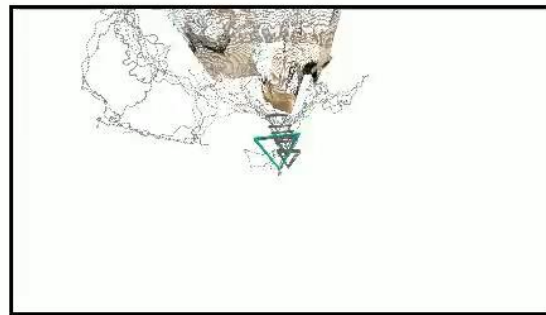
Reloc3r

0cm Camera Pose Error >50cm



0cm Camera Pose Error >50cm

# FastForward



# Thank you

<https://nianticspatial.github.io/fastforward/>