

Improving Object Pose Estimation with Line Features in Mixed Reality

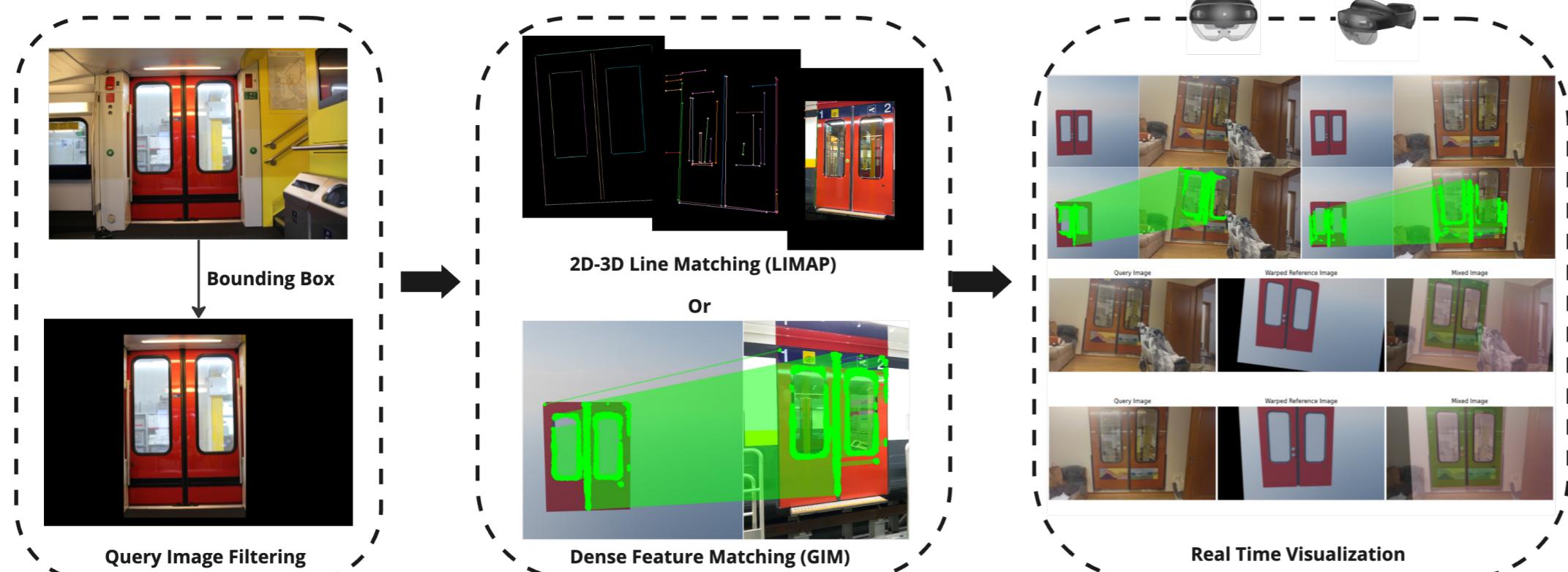
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Overview

Our Project: Improve pose estimation of SBB train door with line features

Can line-based methods handle feature matching with domain shift? NO!!!



Contributions

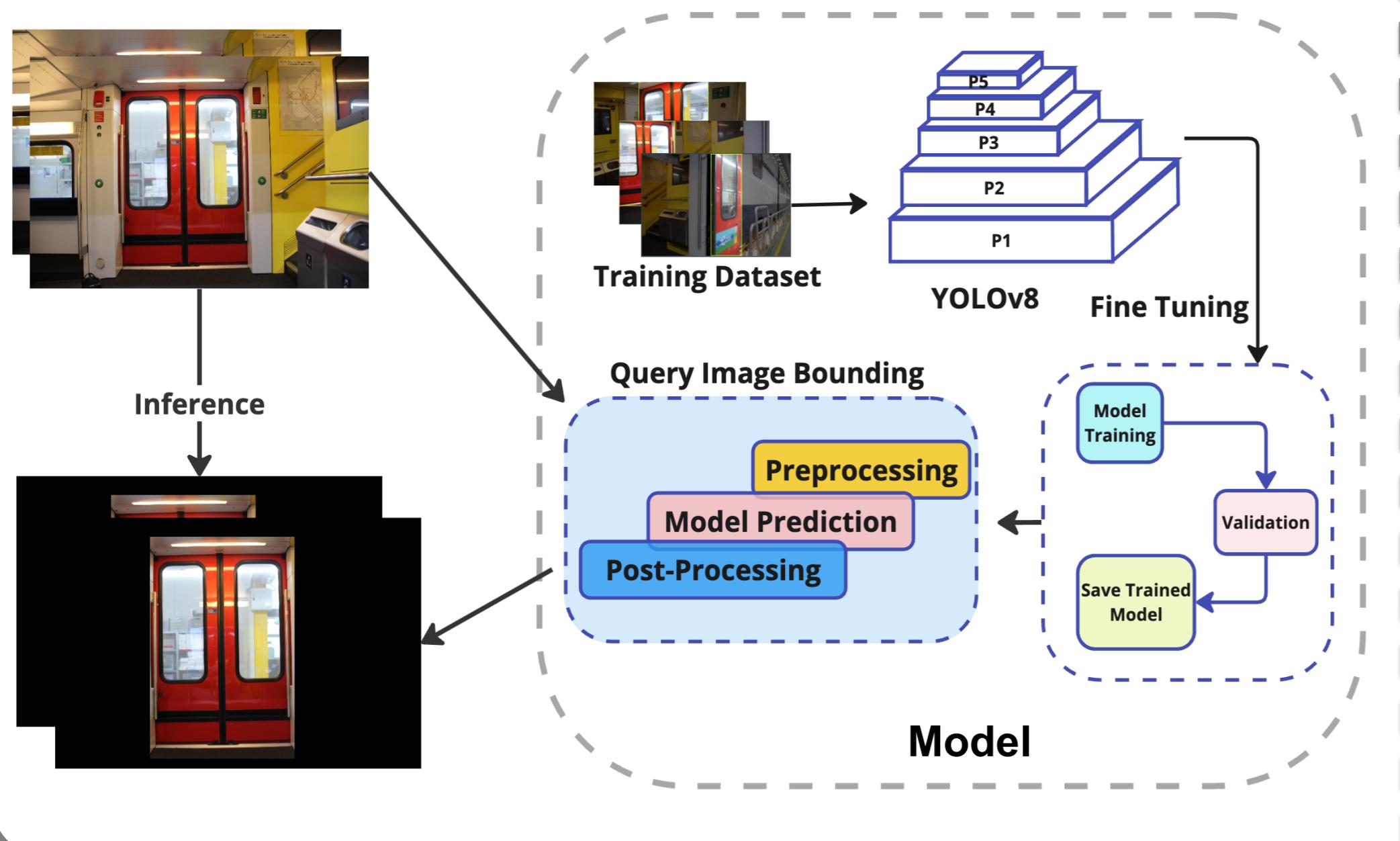
- Investigate the performance of object pose estimation in **low-texture** environment with line features and bounding box.
- Introduce robust generalizable method (GIM) to improve the performance of feature matching with large **domain shifts**.
- Providing a real-time implementation of the method on HoloLens, enabling practical applications in augmented reality.

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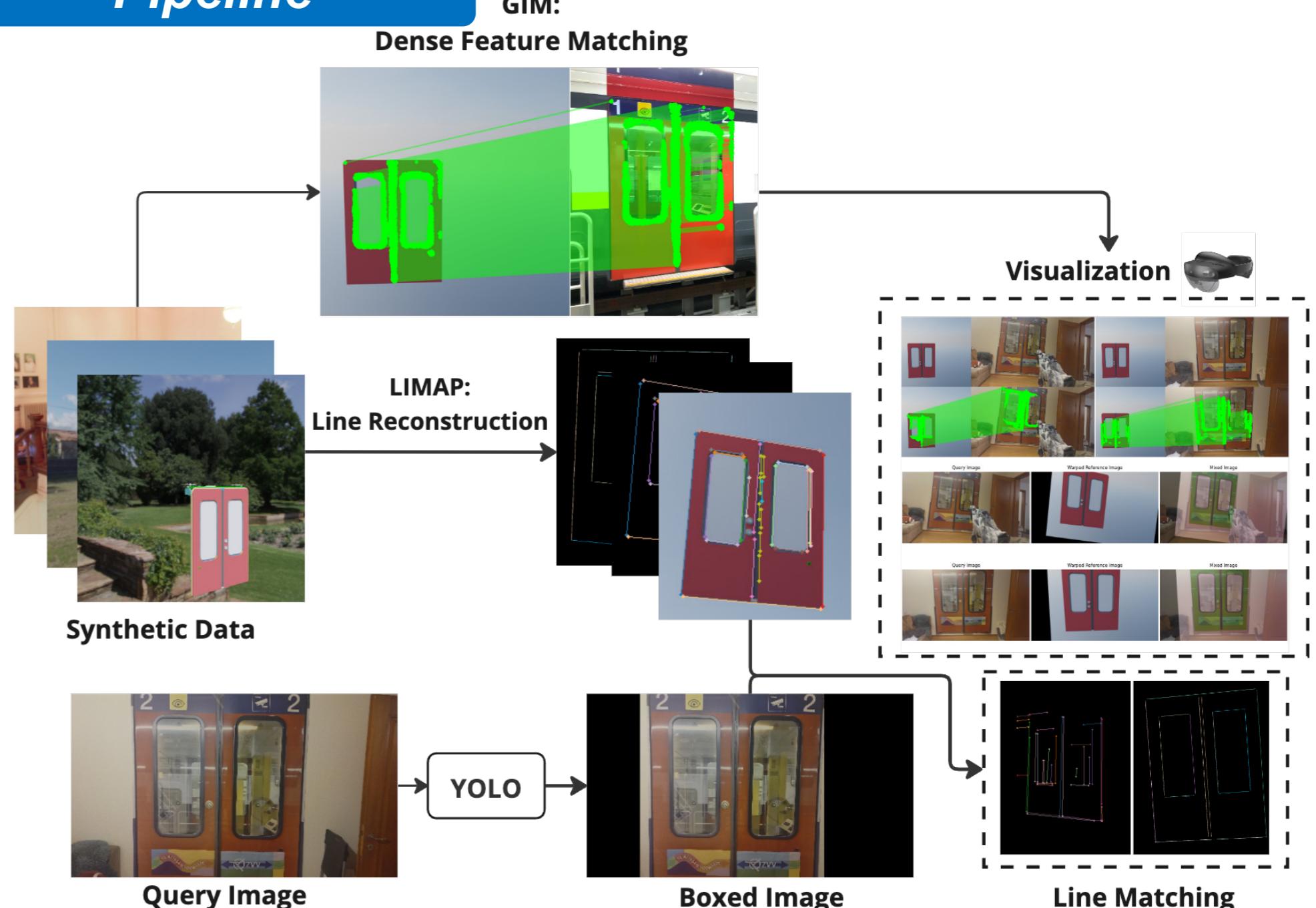


Method

YOLO Bounding Box



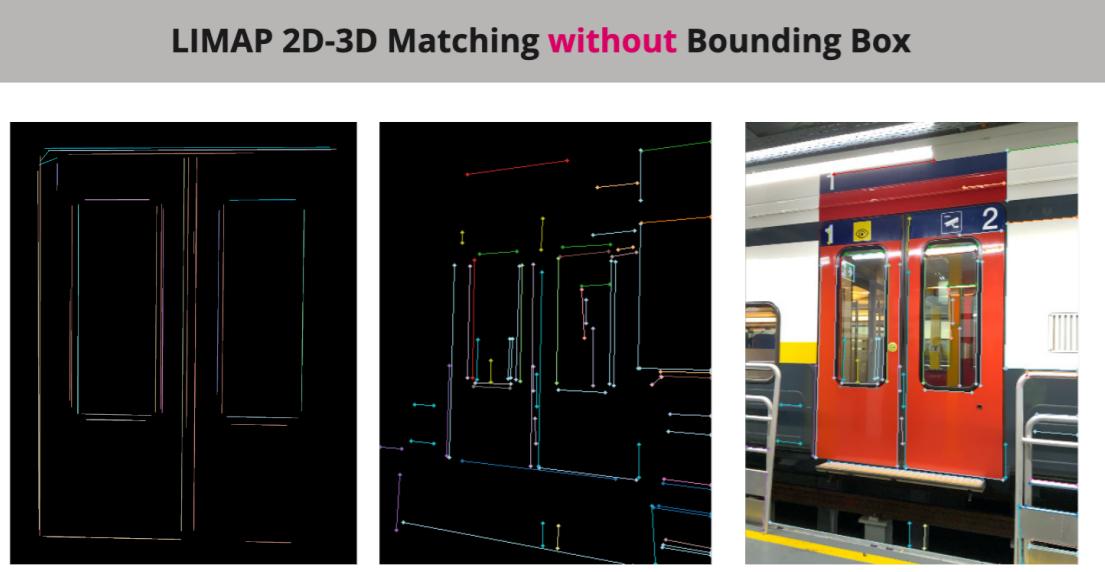
Pipeline



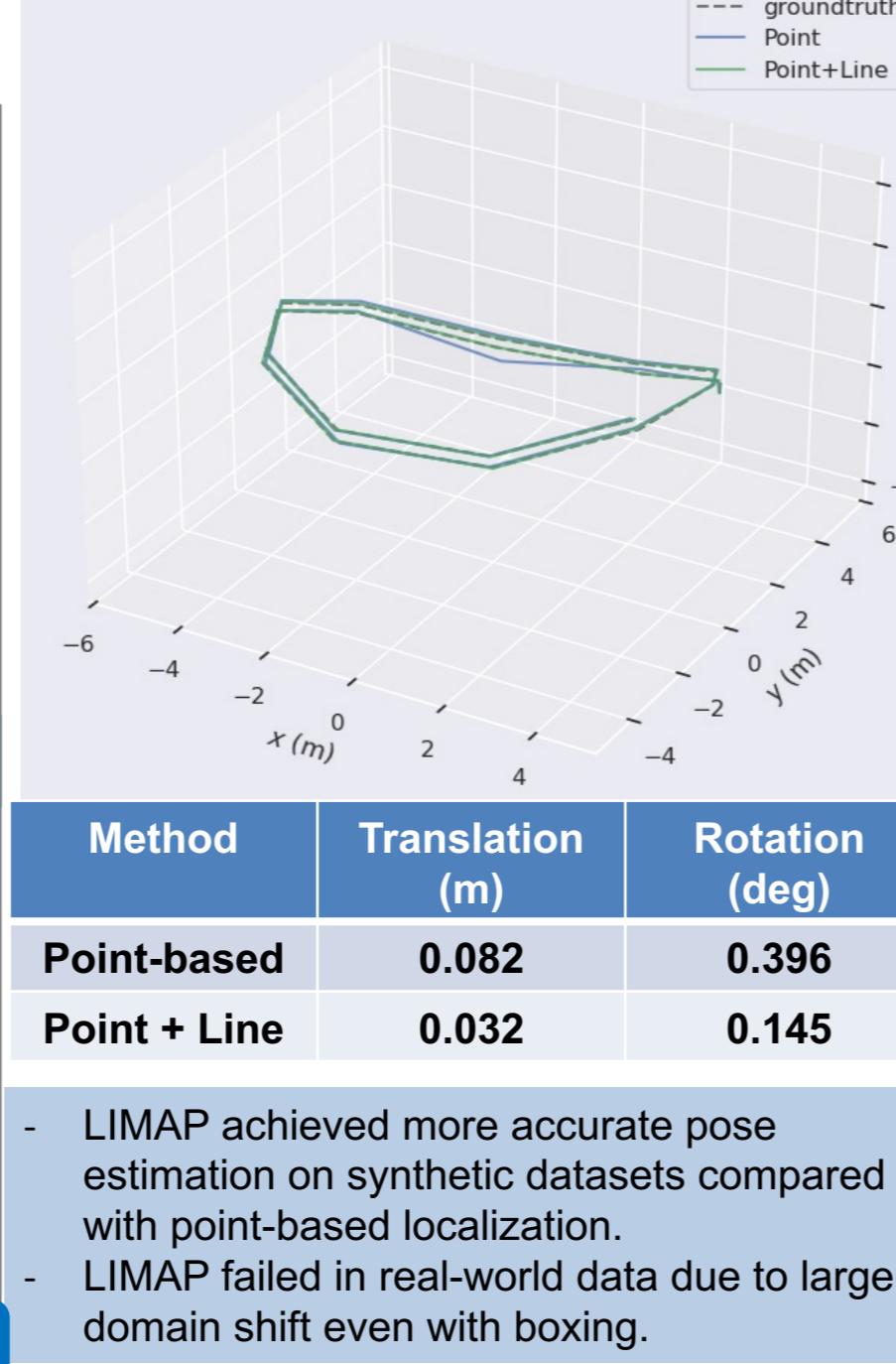
Results

LIMAP

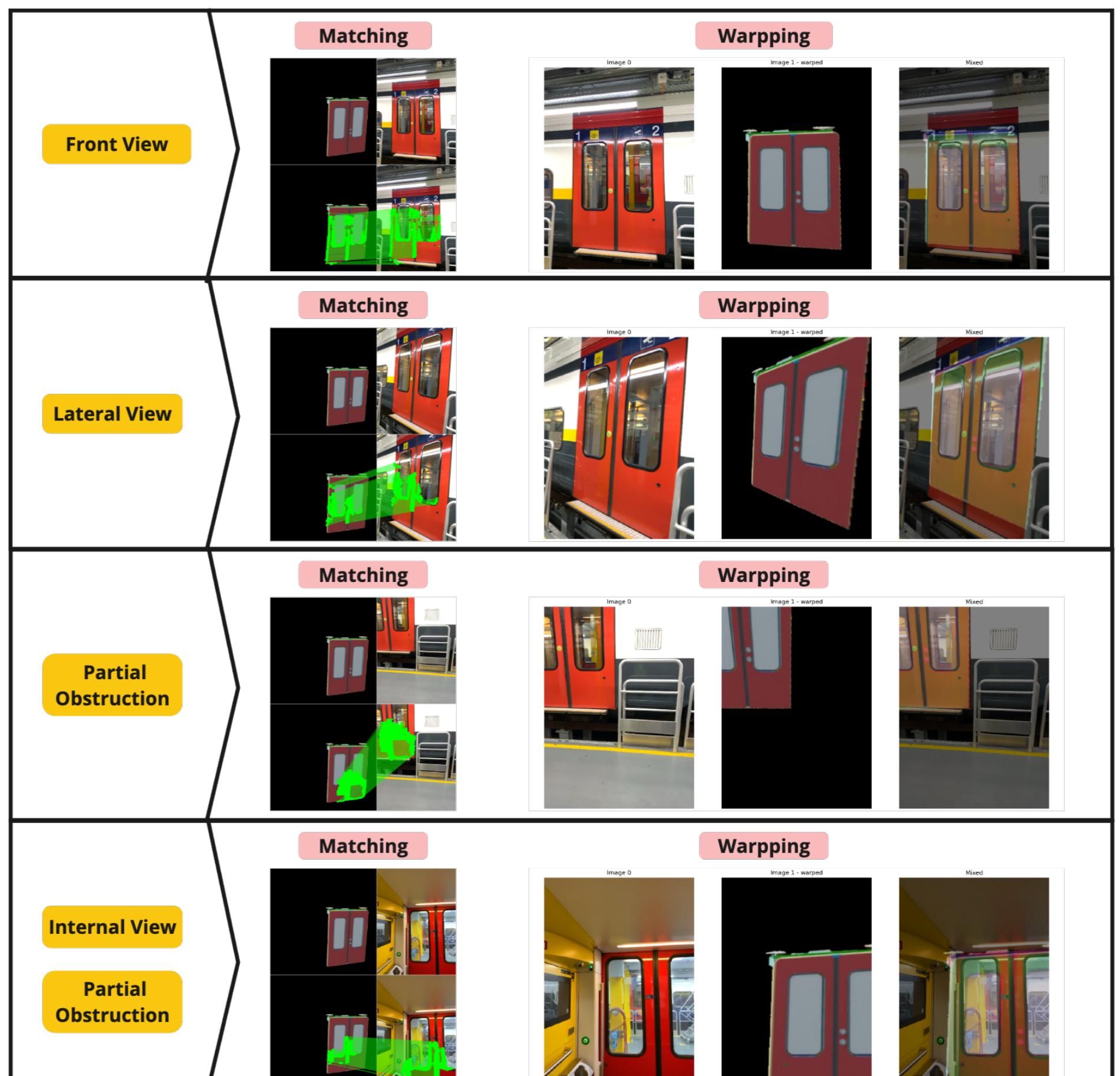
Line Matching



Localization



GIM: Generalizable Image Matcher



GIM: Hololens Implementation

