

Feature Consistency Based Beyond 5G Signal Propagation Oriented 3D Indoor Scene Understanding from Monocular Videos

王子 玥 博士課程修了

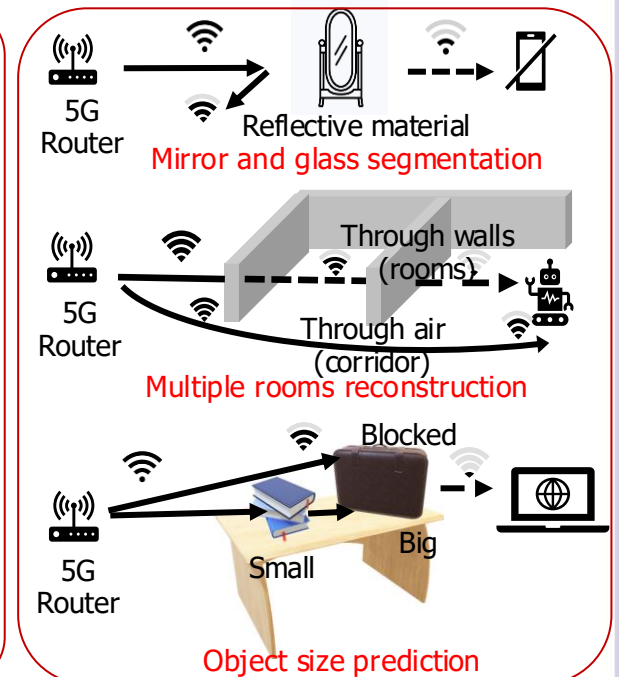
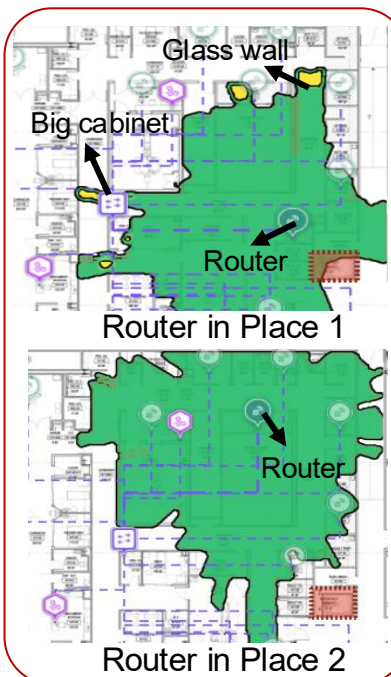
◆ Background

4G
720p
Low-speed use (e.g. 720p video streaming)

~ 1 Gbps
Smartphone communication (e.g. Email)

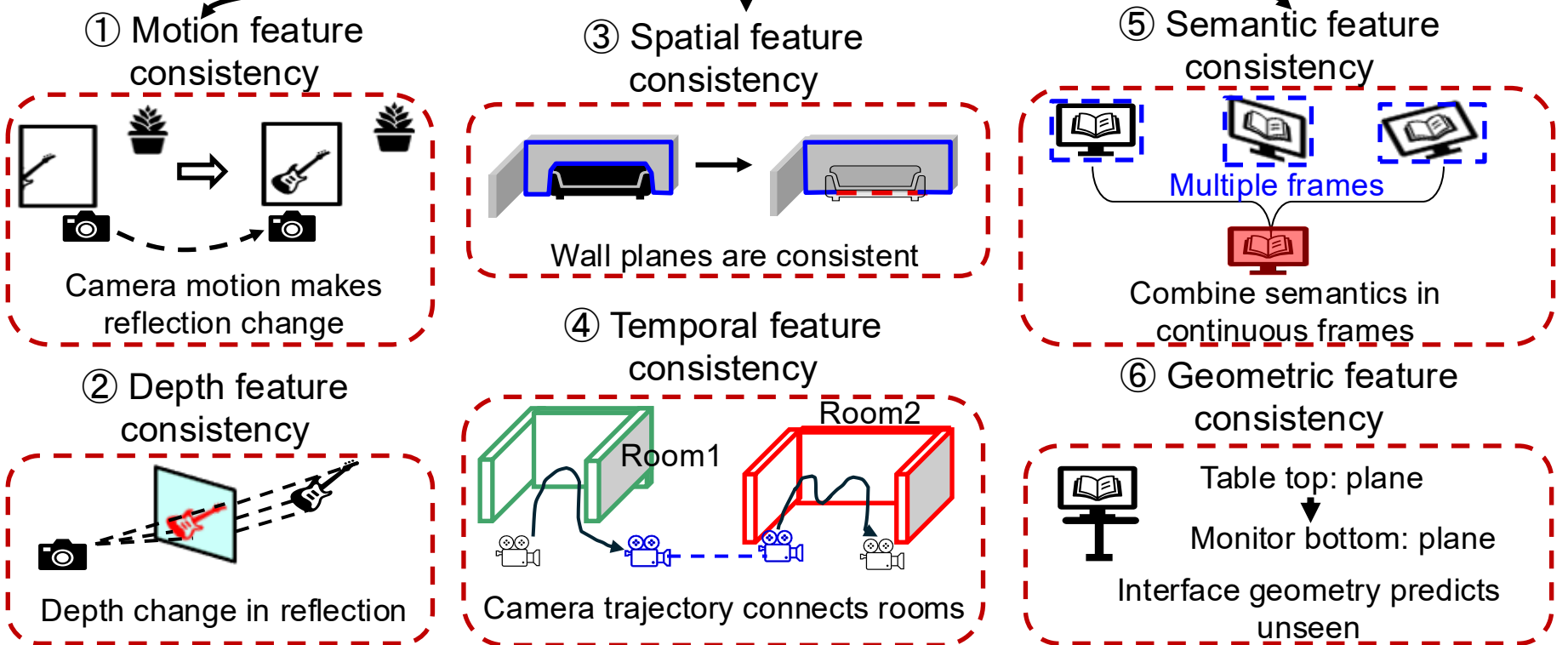
Beyond 5G (5G/6G/7G)
8K
High-speed indoor wireless communication (e.g., 4K, 8K video streaming)

10 Gbps ~ 1 Tbps



◆ Proposal

Feature Consistency



◆ Experimental results

- Mirror and glass segmentation: mIoU 0.776, mPA 0.909
- Multiple rooms reconstruction: Mean room distance accuracy 0.87, 3D IoU 0.70
- Object size prediction: Mean Relative Volume Error 0.3137

◆ Conclusion

This is the first step to use computer vision to build 3D model of indoor environment to support Beyond 5G, and Initial and fundamental process for indoor Beyond 5G implementation.

