

## OVERVIEW

**Mirror Mapping is Confusing**

*LiDAR fails to map mirror surface*

*Mirror disappears*

*Vision System Failure*

*Drone crashes*

1 Virtual vs Reality

2 Unaccounted Multi-bounce

**Setup**

Handheld LiDAR scanning without manual calibration

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Normal room lightning condition      Handheld LiDAR with 2 echoes      1 Diffuse Surface  
1 Specular Surface

**Challenges**

1 **Multiplexing**

Ambiguity about which pixels are reciprocal pairs

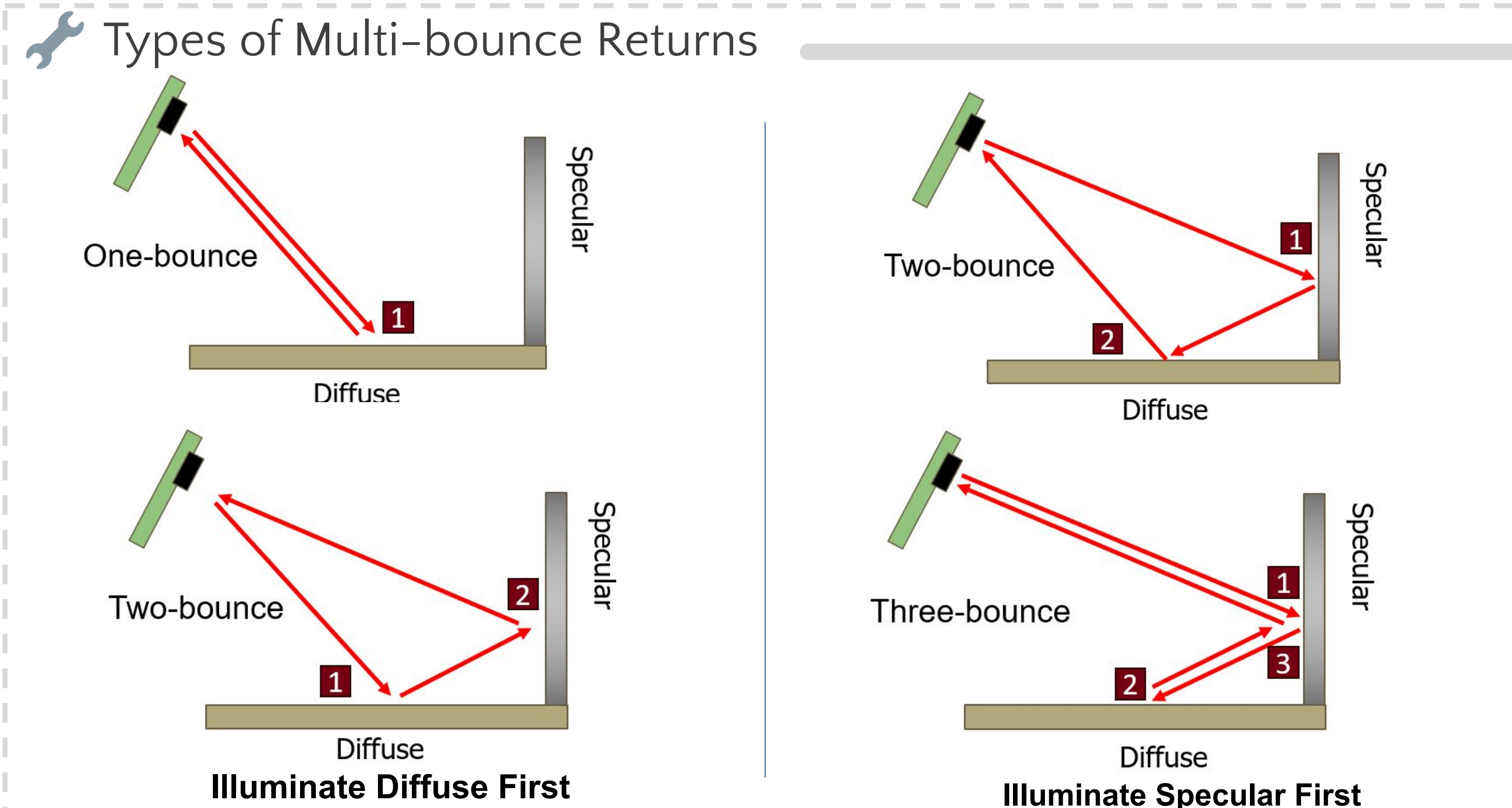
2 **Co-located Emitter and Detector**

Distinguishing the type of bounce returned at the coinciding spot

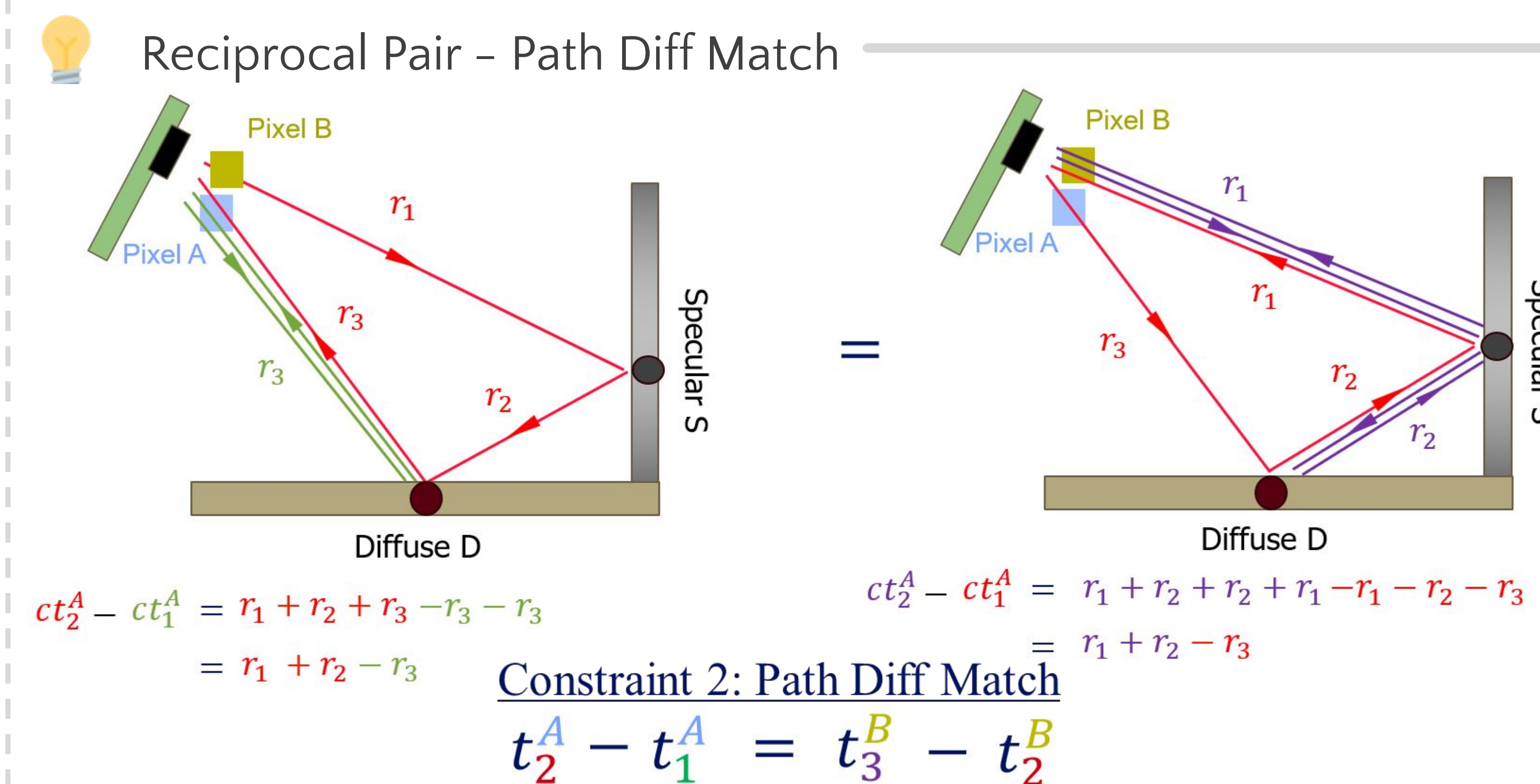
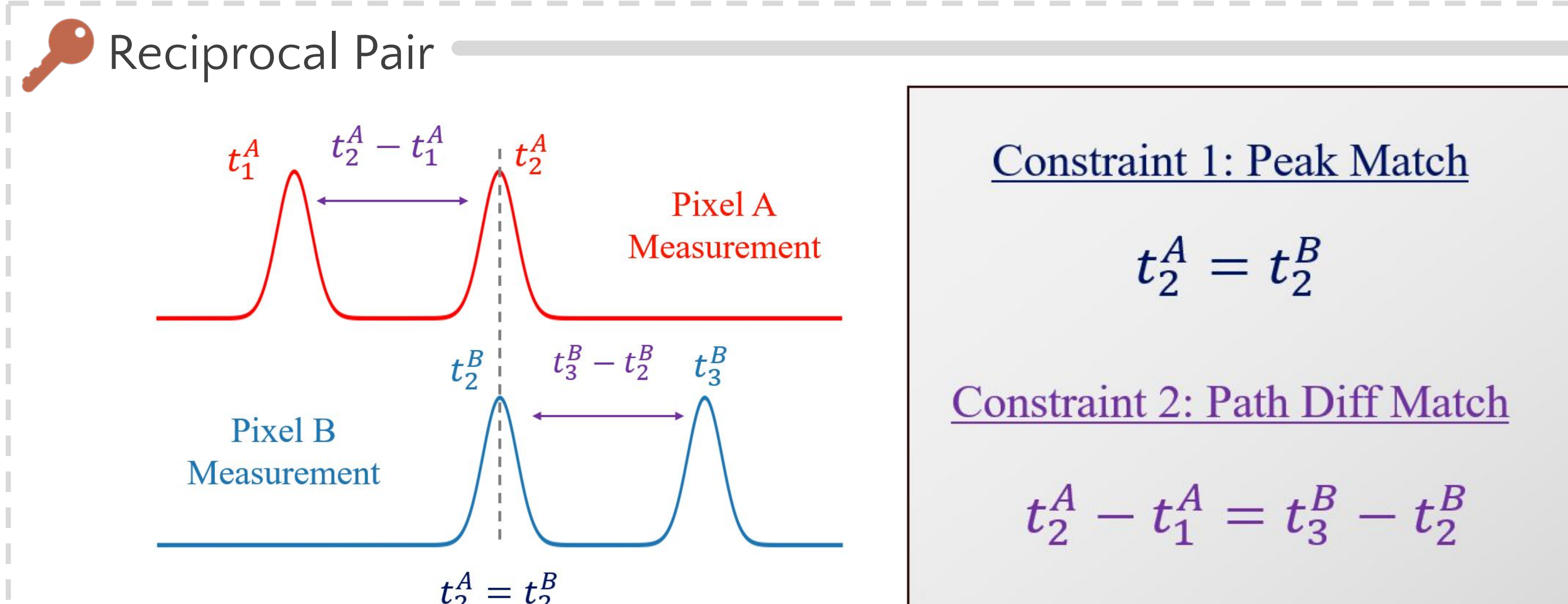
2b is measured. Spot coinciding with pixel. ✓

2b is not measured. No coinciding pixel. (Measured in [0]) ✗

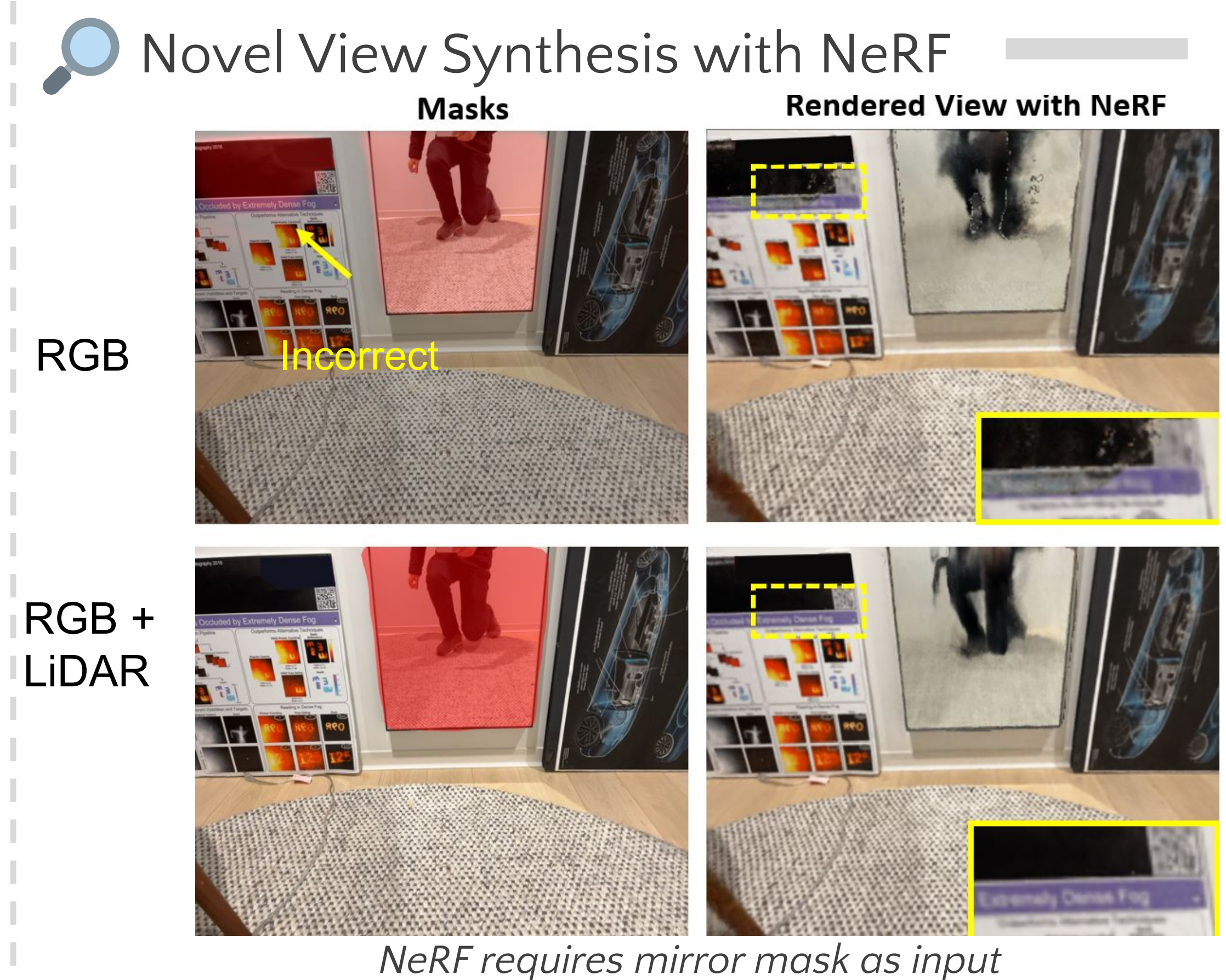
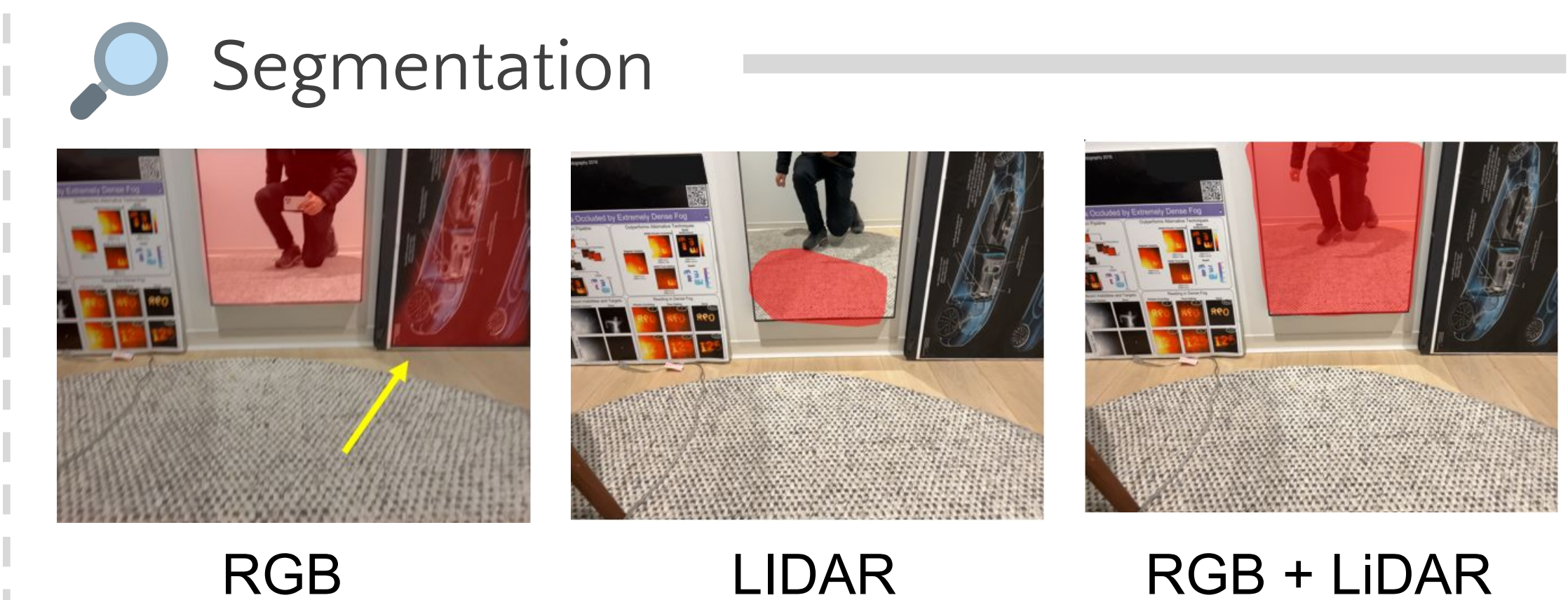
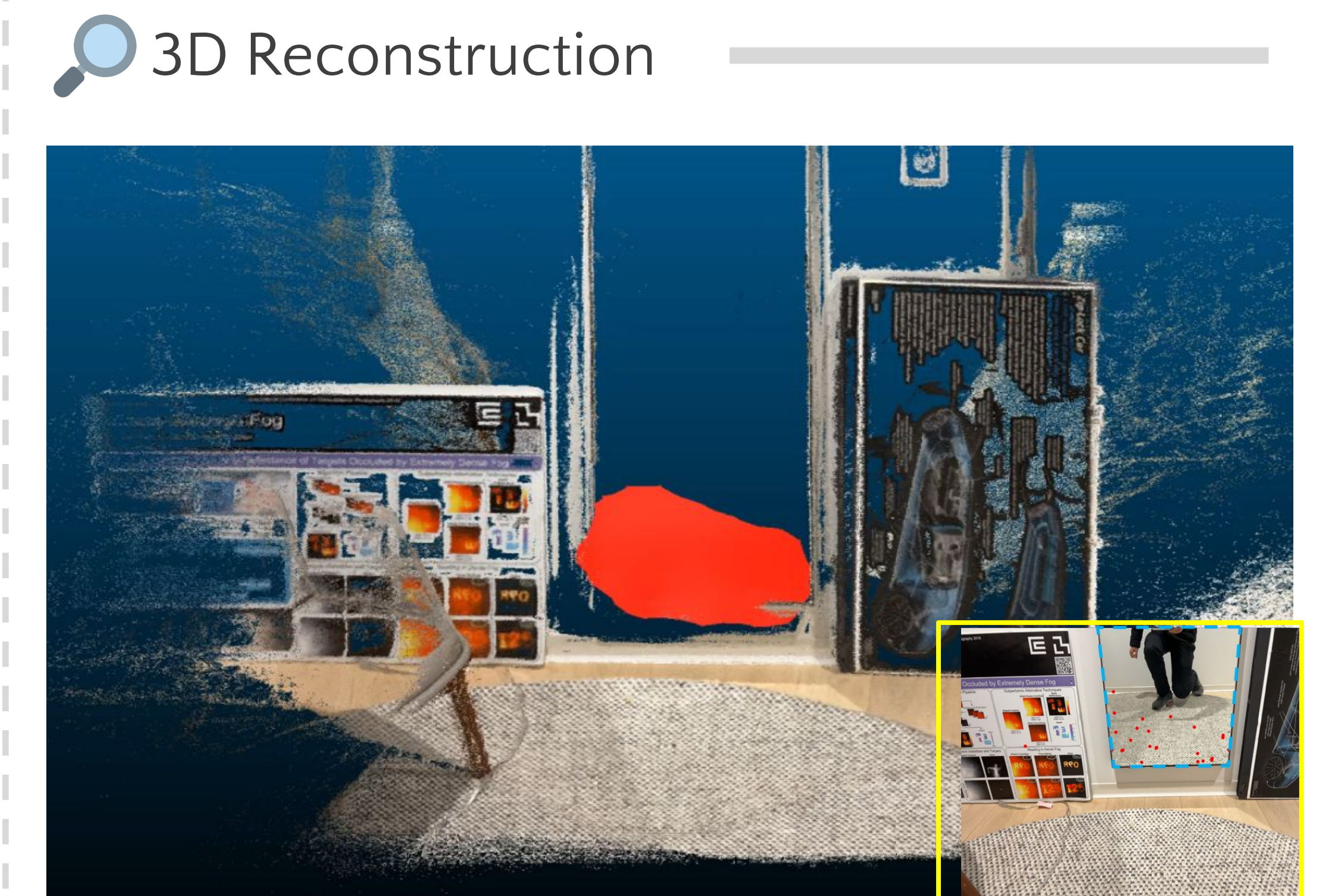
## BACKGROUND



## METHODOLOGY



## RESULTS



## FUTURE DIRECTIONS

