

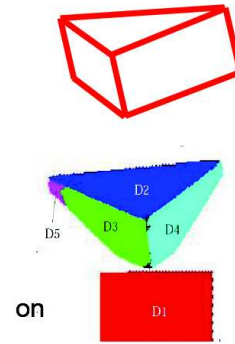
3D Model Matching Pipeline

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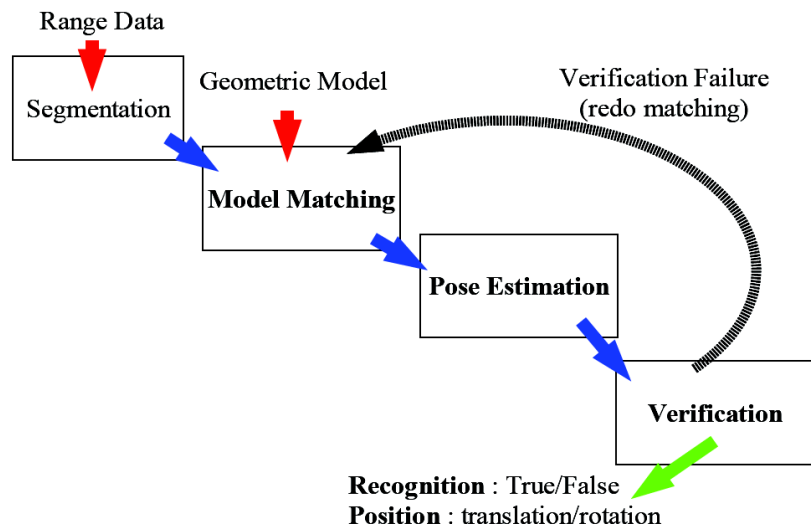
3D Plane-based Recognition

Is there a wedge in the scene?

- Have geometric model: 3D *a priori* knowledge
- Data from laser scanner
- region segments
- Geometric transformations



Range data: 3D Recognition Pipeline



Recognition: Model Matching

Use Tree

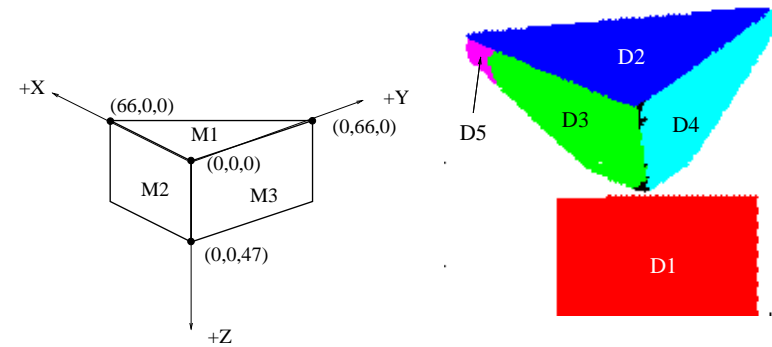
Unary constraint: eg. surface area

Binary constraint: eg. angle between vectors, like surface normals

Trinary constraint: sign of vector triple product $\vec{a} \cdot (\vec{b} \times \vec{c})$
eg. on surface normals

Result: paired model and data planes

Recognition: Matching Results



matchedpairs =

model	data
M1	D2
M2	D3
M3	D4

What We Have Learned

- An application of the matching algorithm to 3D data
- A review of 3D coordinate systems