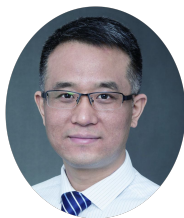




Shape-Constraint Recurrent Flow for 6D Object Pose Estimation



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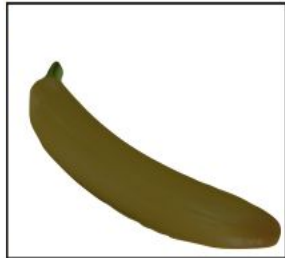
Yinlin Hu²

¹Xidian University, ²Magic Leap

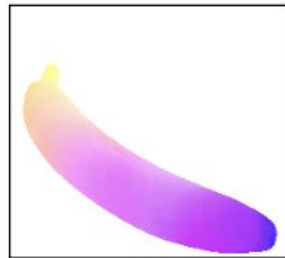
Motivation



Input



Initialization



Flow

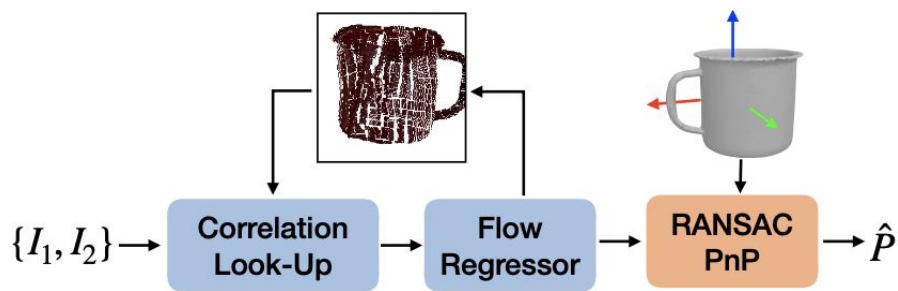


Flow warp

The matching procedure does not consider the 3D shape prior

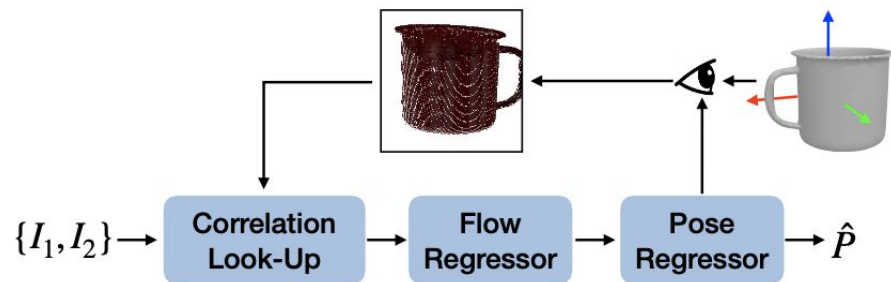
Different pose refinement paradigms

The standard strategy



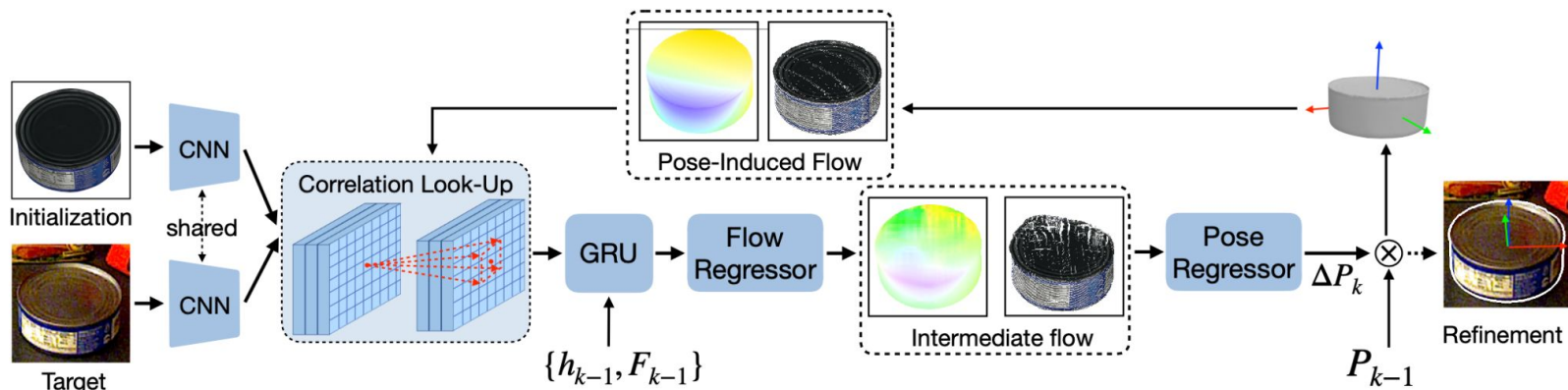
- ☹️ The flow loss is surrogate
- ☹️ Large matching space in indexing

Our strategy

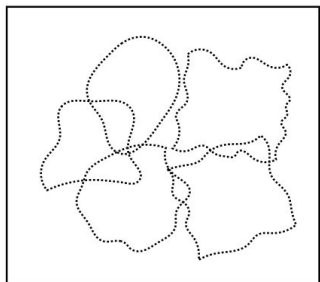


- 😊 End-to-end for 6D pose
- 😊 Matching with shape-constraint indexing

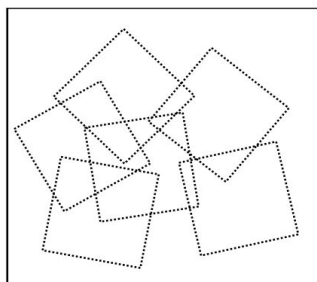
The overall framework



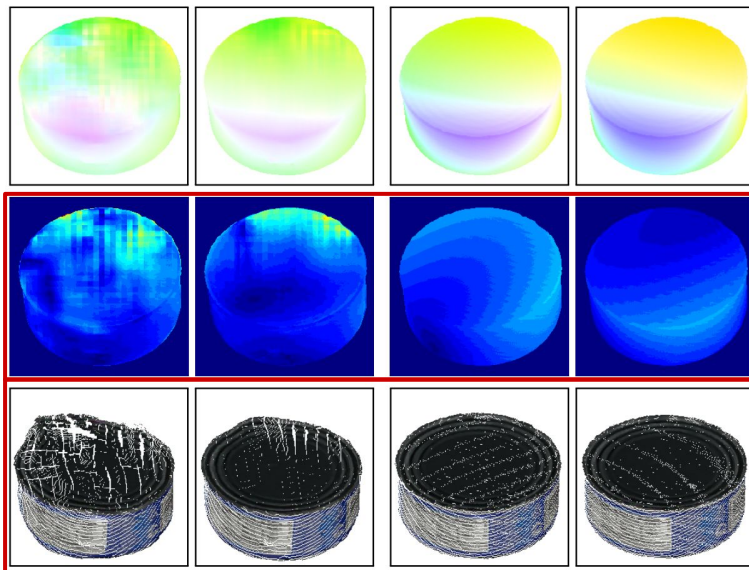
Shape-constraint correlation space



(a) Standard



(b) Shape-constraint



(a) The baseline strategy

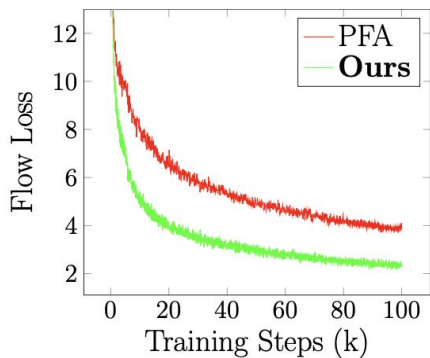
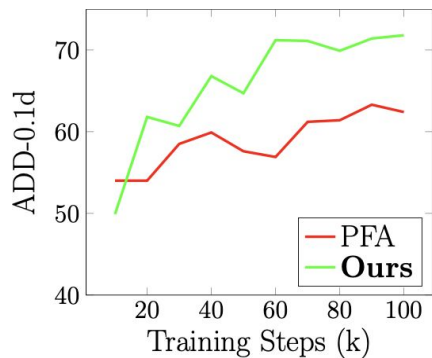
(b) Our strategy

😊 More accurate flow and pose

😊 Embeds the shape prior

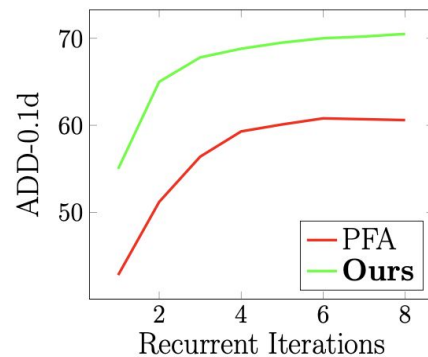
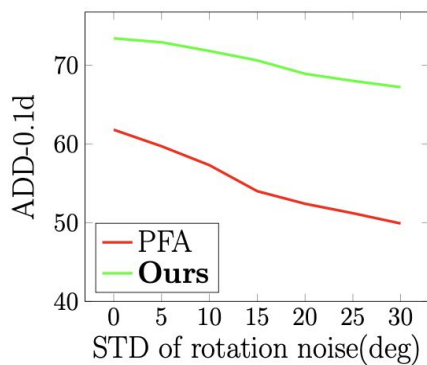
Results

Training



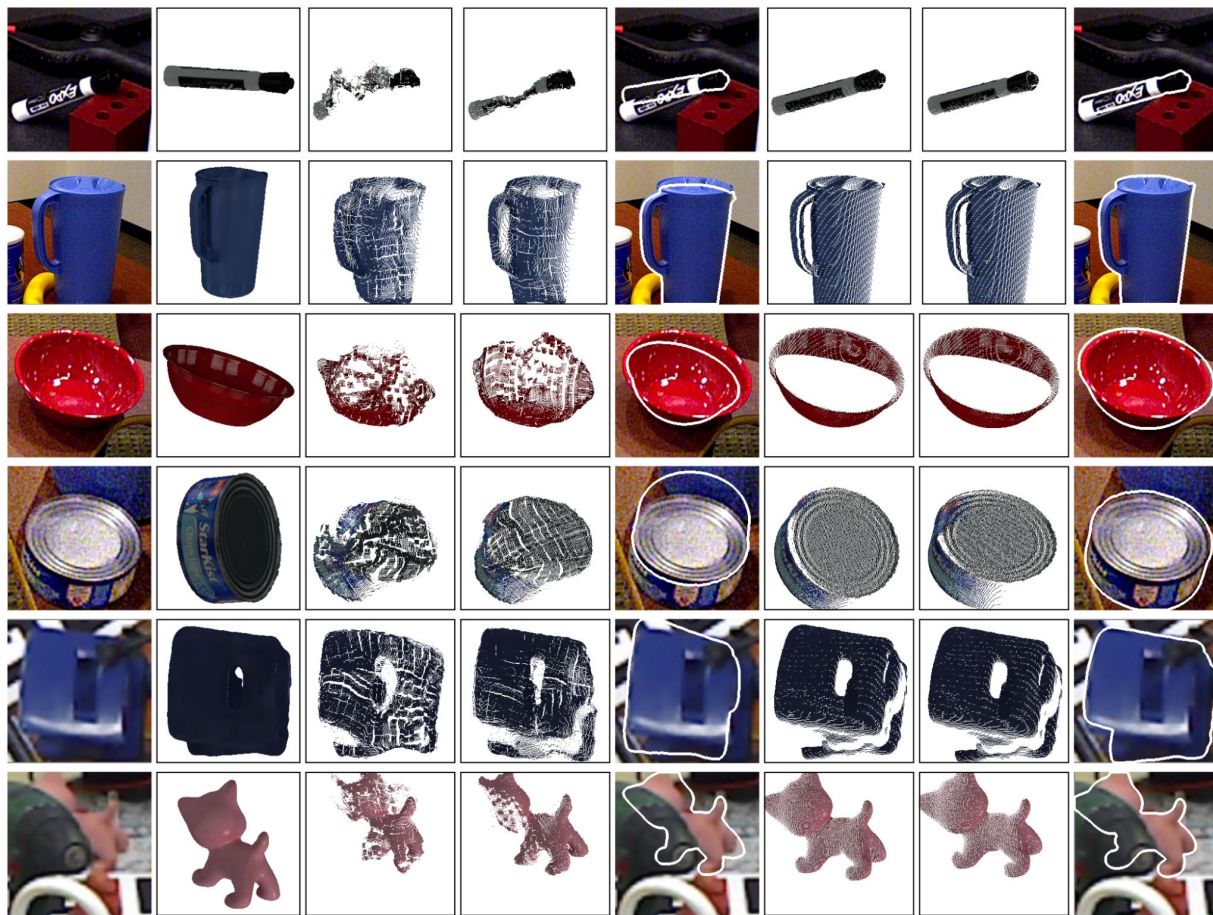
😊 Better convergence

Inference



😊 More robust to initial pose

😊 Much more accurate



(a) Target

(b) Initialization

(c) PFA

(d) Ours

Thanks

Paper



Code

