

Problem/Challenge

Problem.

Hand Localization and Pose Estimation from depth image

Challenge.

- (a) Global position and orientation of hand are complicated and changeable.
- (b) Fingers are flexible and easy hidden by each other
- (c) Depth image has severe edge noise

Contribution

Hierarchical hand localization

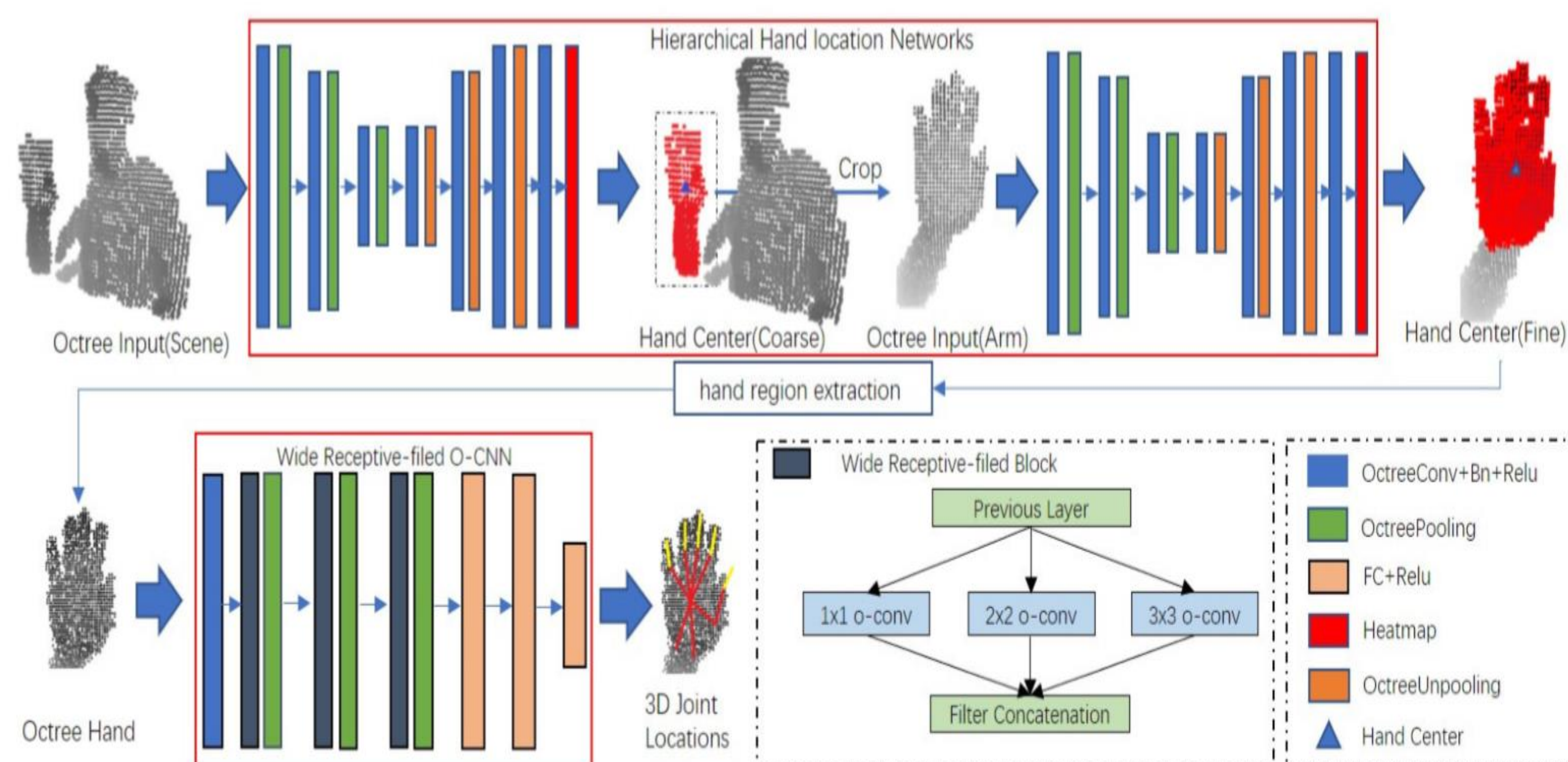
We propose a Hierarchical Hand Localization Networks to estimate the hand location from coarse to fine in a depth image.

Wide receptive-field for pose estimation

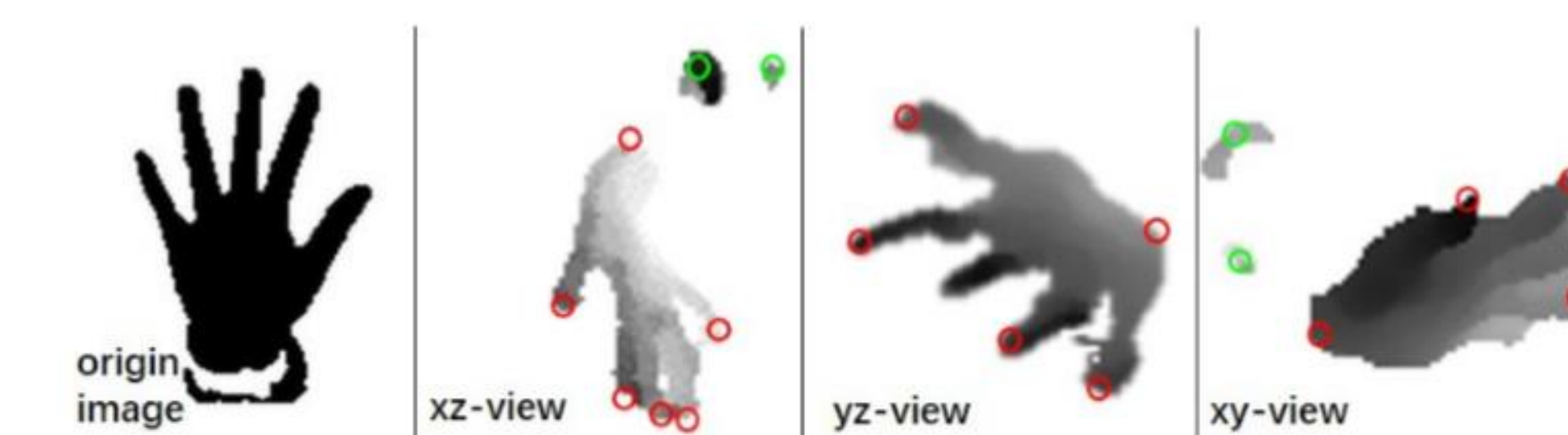
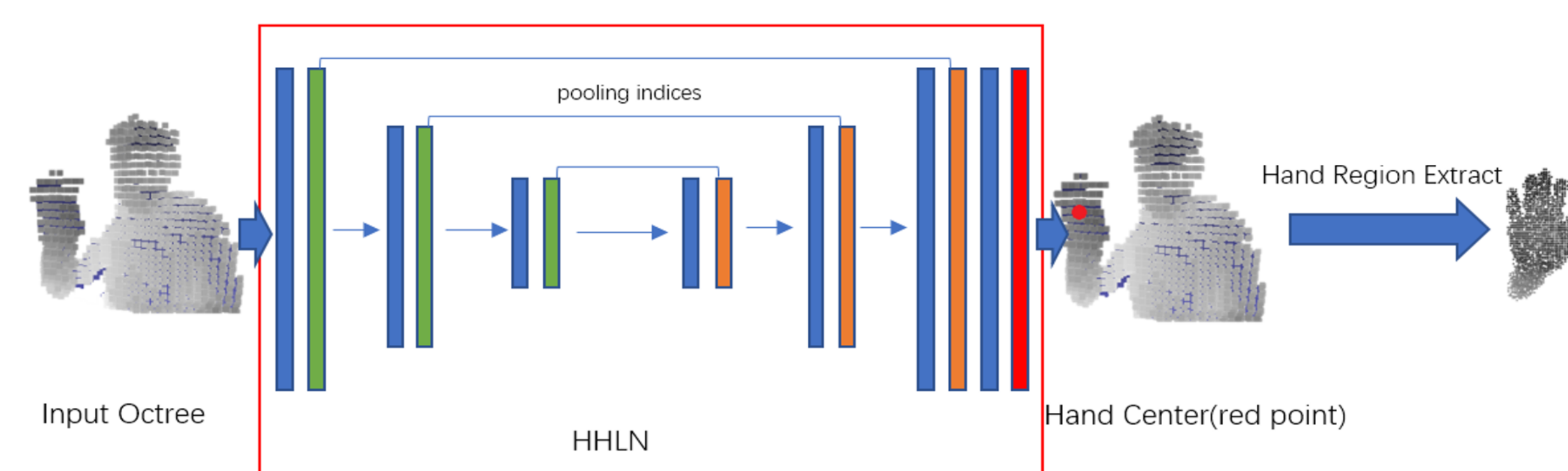
We extend O-CNN by broadening the receptive field to capture multi-scales hand structures. The Wide Receptive-filed block shows better performance.

Proposed Methods

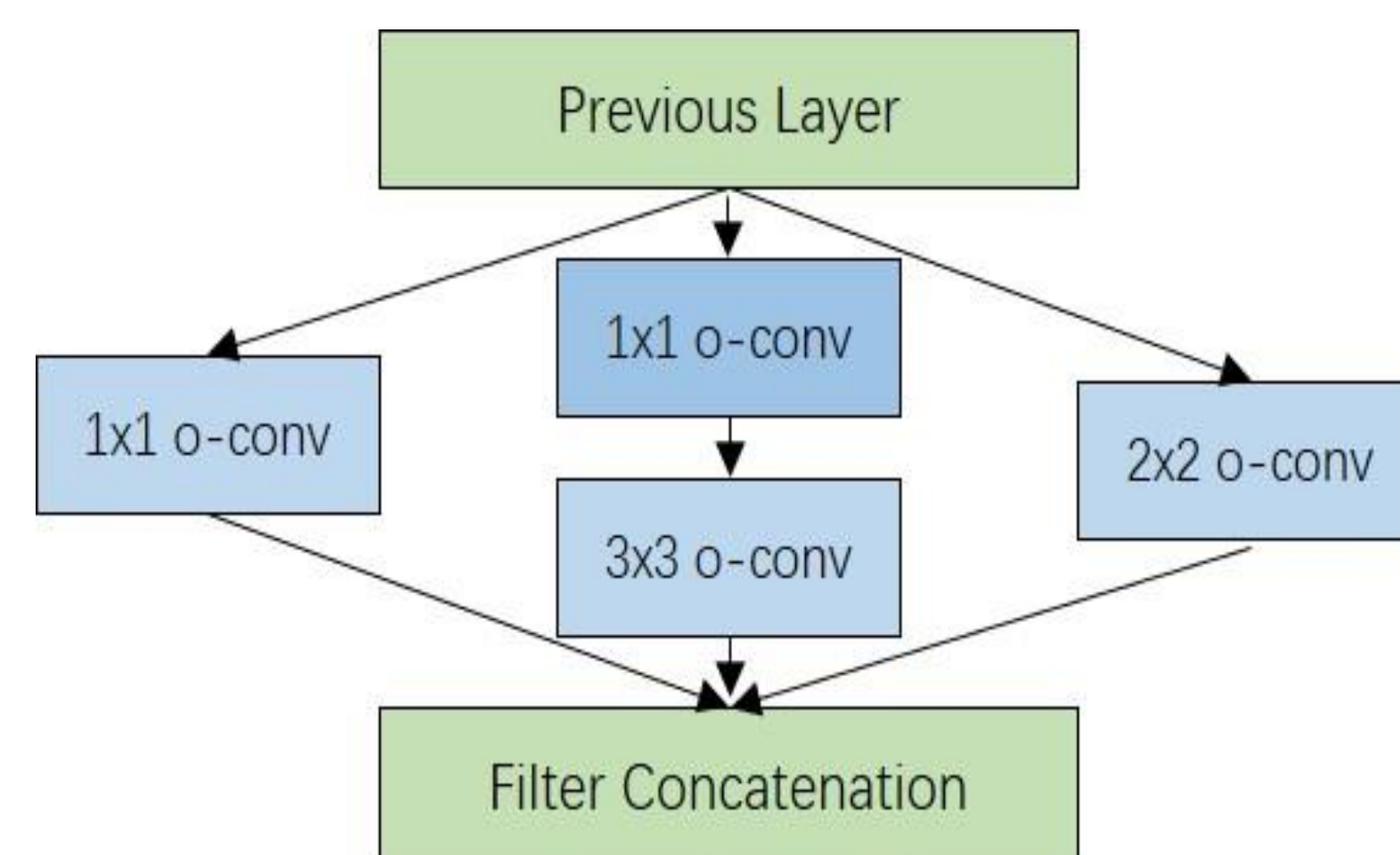
Overall of our proposed framework.



Hierarchical Hand Localization

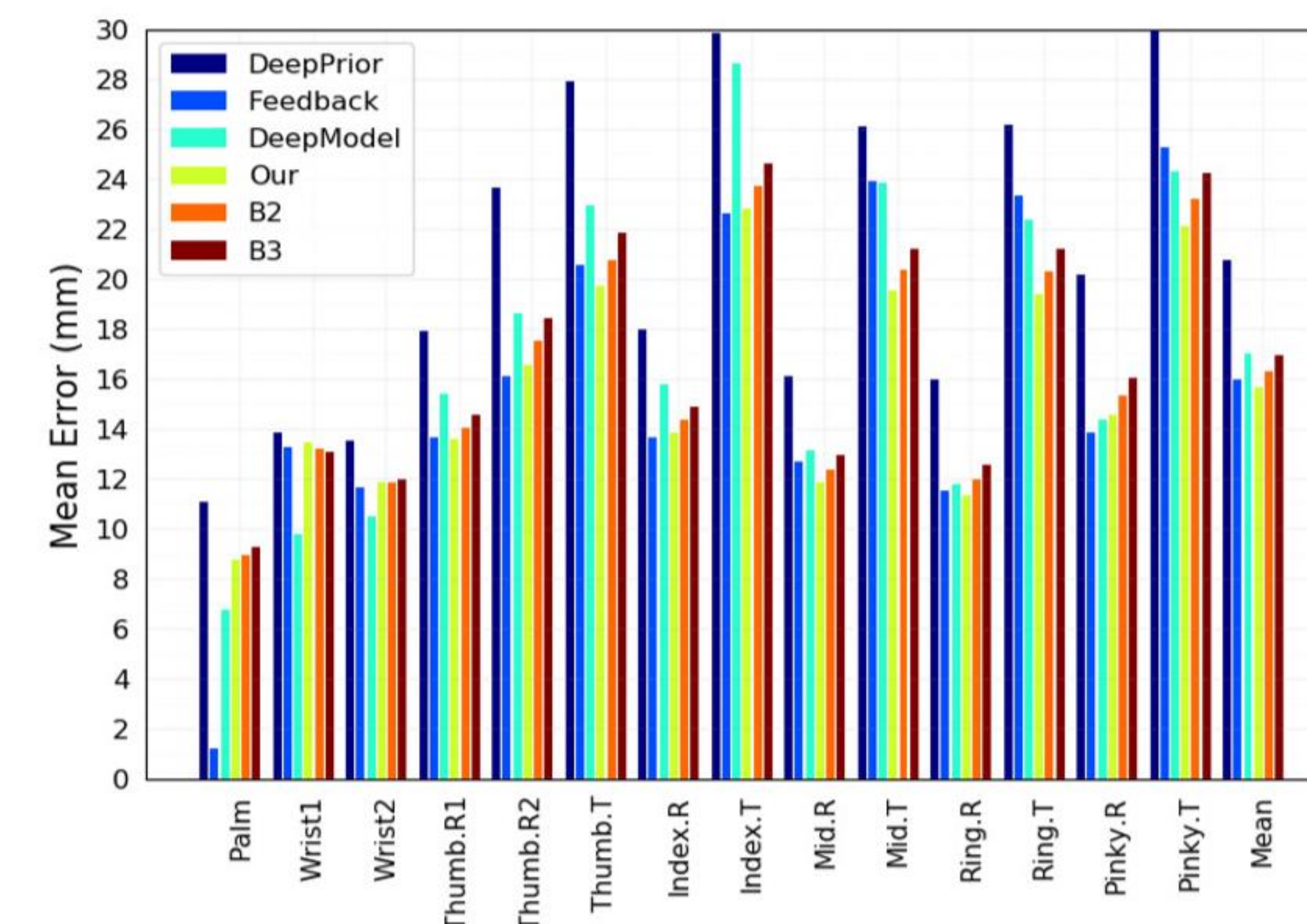


Details of Wide Receptive-filed block

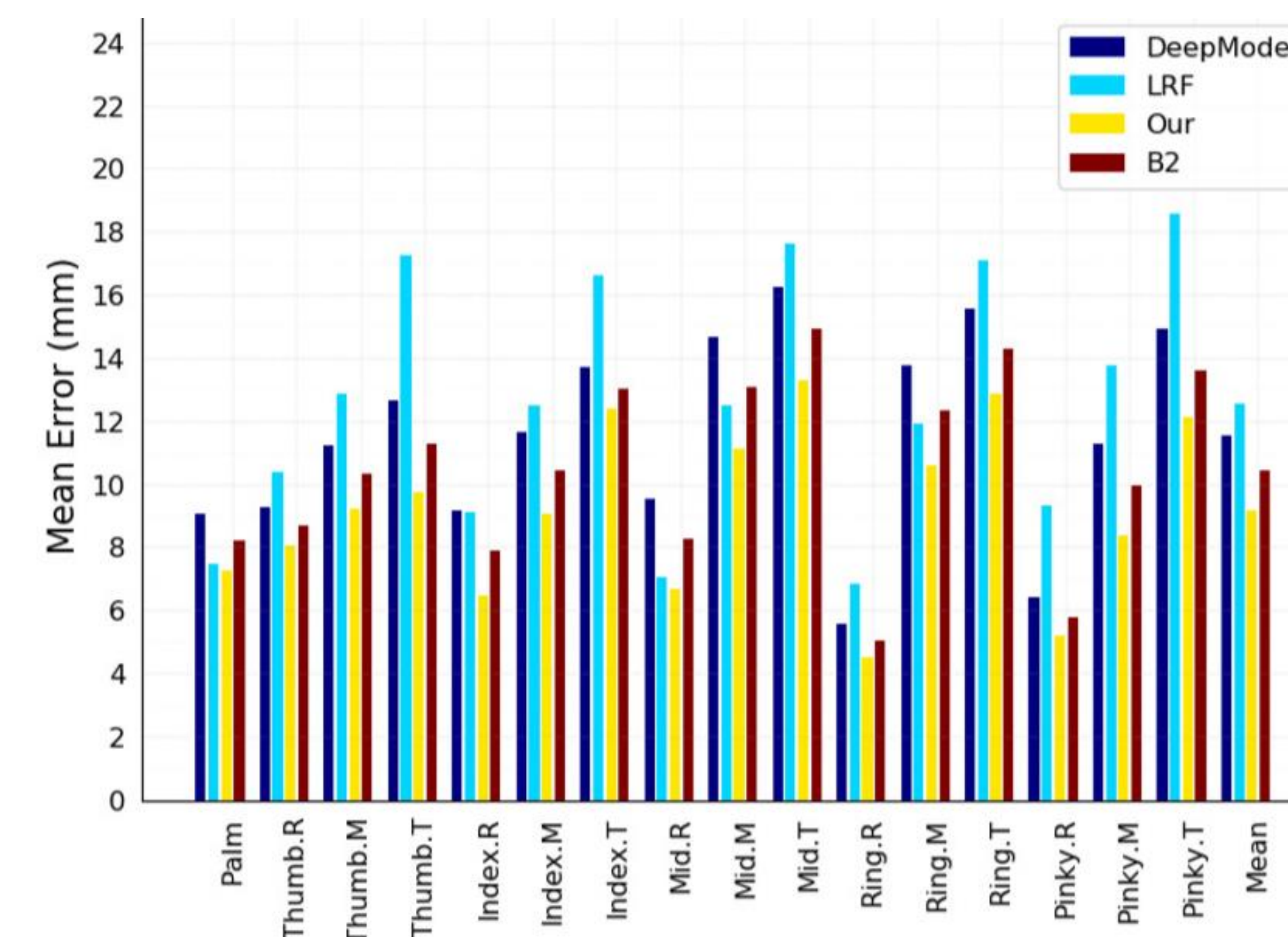


Experiments

Comparison with state-of-the-arts on NYU.



Comparison with state-of-the-arts on ICVL.



Comparison for hand localization.

Method	run time(ms)	mean error(pixels)
Baseline	52	8.06
Choi	48	13.62
HHLN	29	6.29