## (A)Shortcomings of existing methods: mAP mAP More time **Images** 60% Expected category Edge Class Pedicle Location category confidence category 72 Xmin Annotaated Ymin | 206 200 206 Pedicle 353 224 199 350 location ■ mAP 336 419 Need coordinate Hard Annotation Imperfect prediction Inappropriate pathology driven Advance 2 | Advance 3 / Advance 1 (B)Task of our work: mAP Edge:91% Supervised Images **Predict** Evaluate **MDNet** category confidence Pedicle Flat location Train ■ mAP **i** Challenge 3 Challenge 2 **Challenge** 1 (C)Challenges of our task: Ground truth Wrong location Flat Selective search Pedicle Unwanted

Edge

Indistinguishable shape

Unexpected false positives

background noise

Image

Inaccurate Proposals