



i-VisionGroup@Tsinghua

Papers Reading

谭子萌

Cephalometric Landmark Detection by Attentive Feature Pyramid Fusion and Regression-Voting

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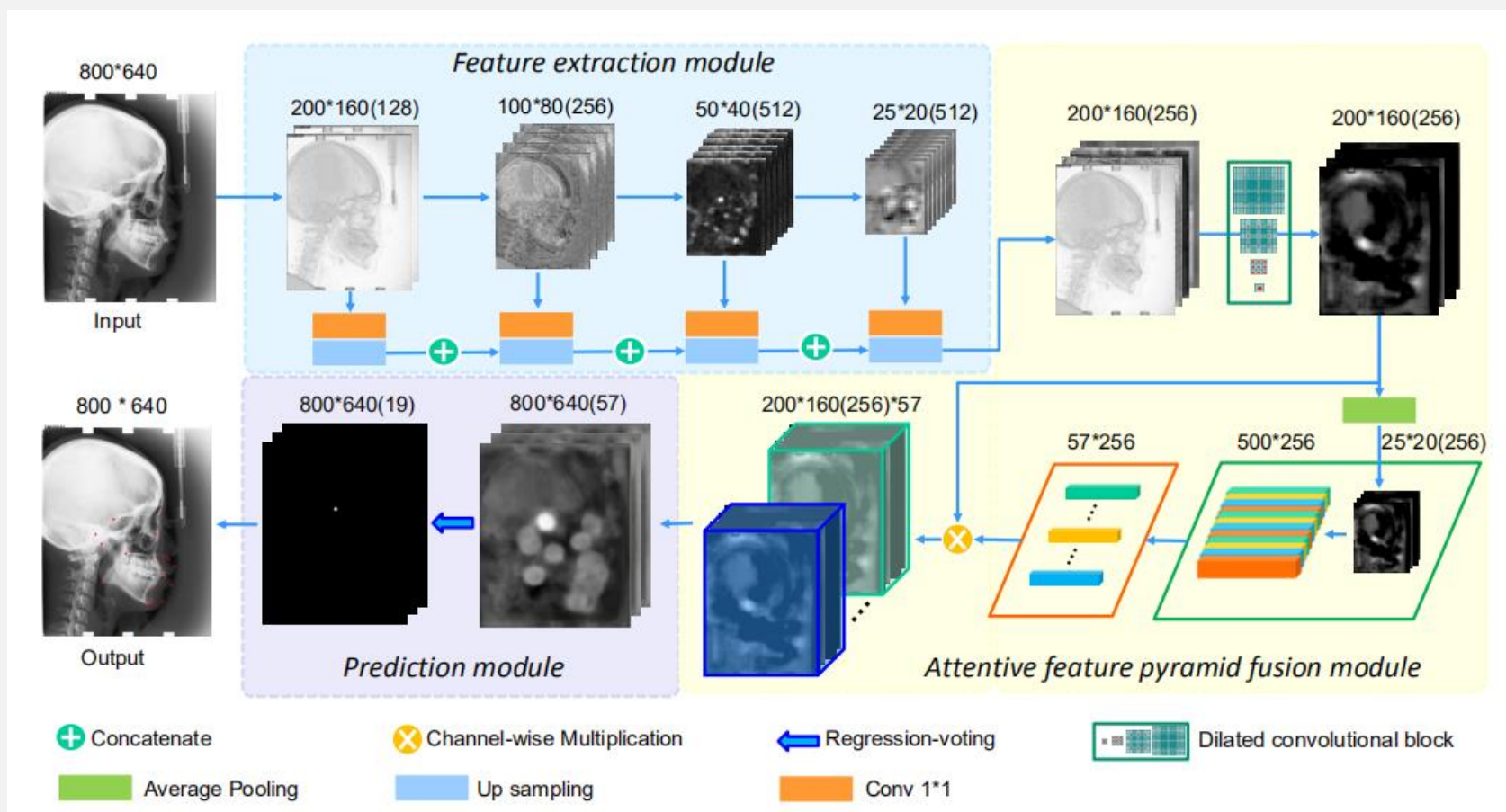
² Modontics (Hong Kong) Limited, Hong Kong

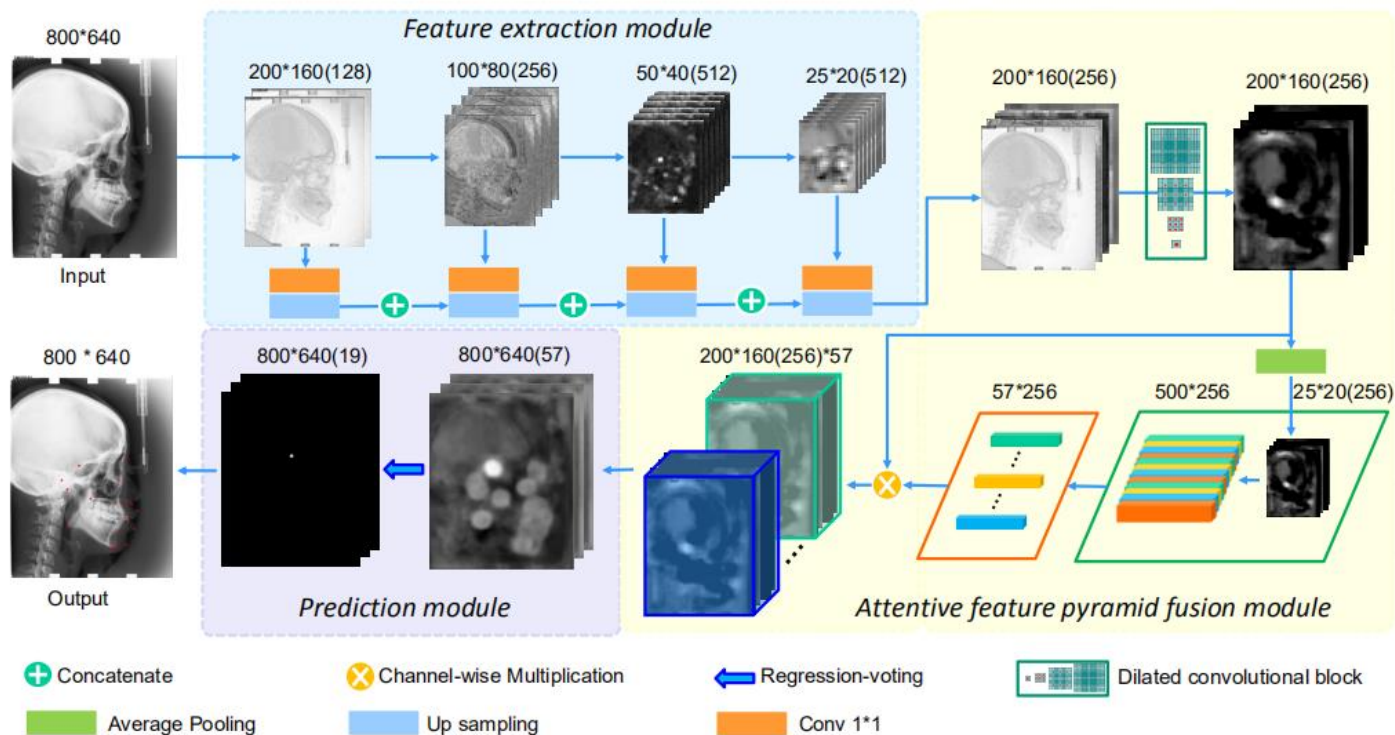
dataset: 头侧影x光公开数据集 (2D, 19个关键点)

2015 IBSI Challenge

□ Motivation:

1. 不同位置的关键点（轮廓、内部）需要不同层次的语义信息
— feature pyramid
2. 不同的关键点对不同的特征有不同的关注度 — self-attention mechanism





1. if $\|x_i - l_k\|_2 \leq R$ $H_k(x_i) = 1$ otherwise $= 0$
2. $O_k(x_i) = (l_k - x_i)/R$
3. 由offset maps和heatmap 生成 activation map

$$M_k(x_i) = \sum_{x_j \in A_k} \mathbb{1}\{\|x_j + \lfloor O_k(x_j) \times R \rfloor - x_i\| = 0\}$$

选择 M_k 中的最大值作为预测位置

An Attention-Guided Deep Regression Model for Landmark Detection in Cephalograms

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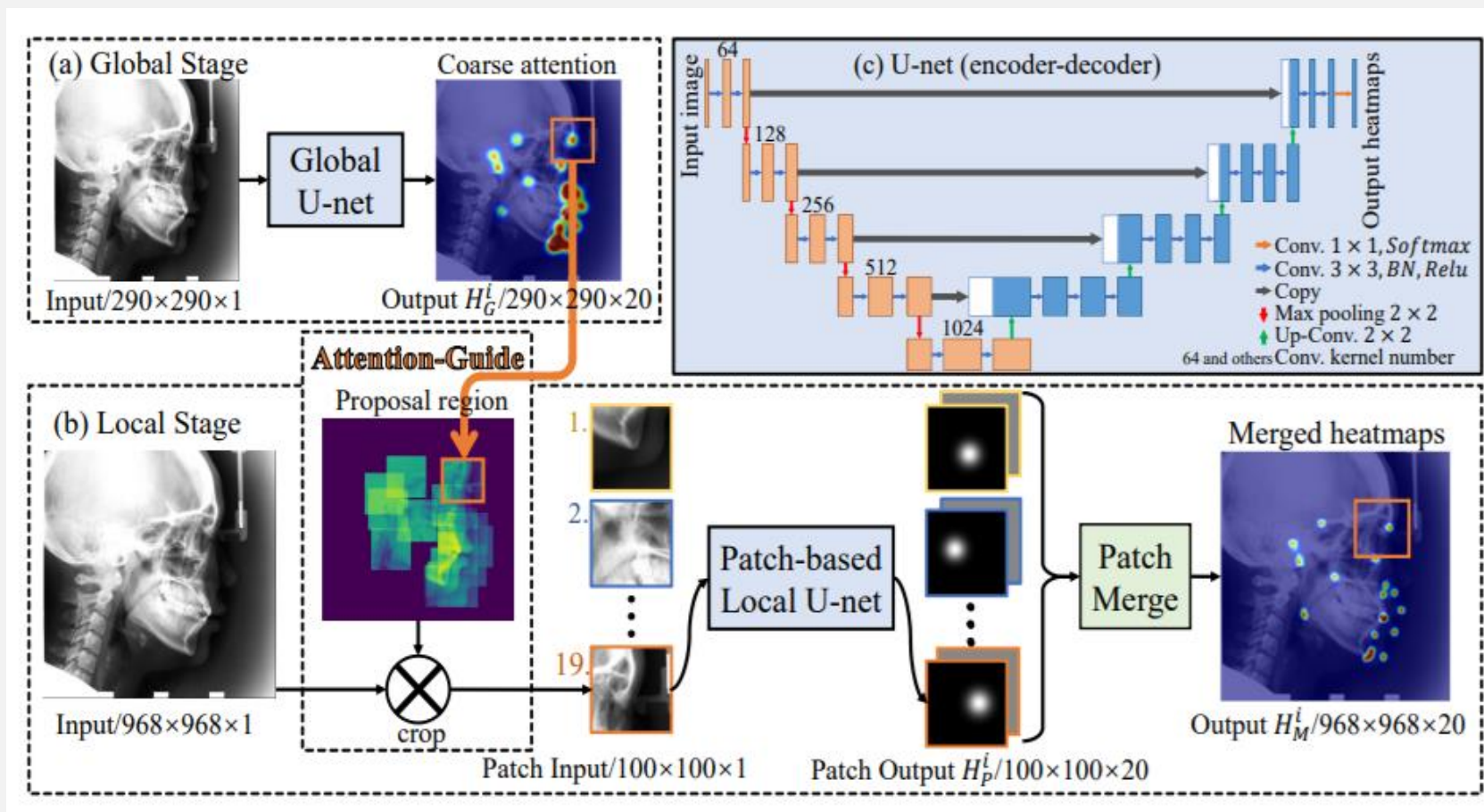
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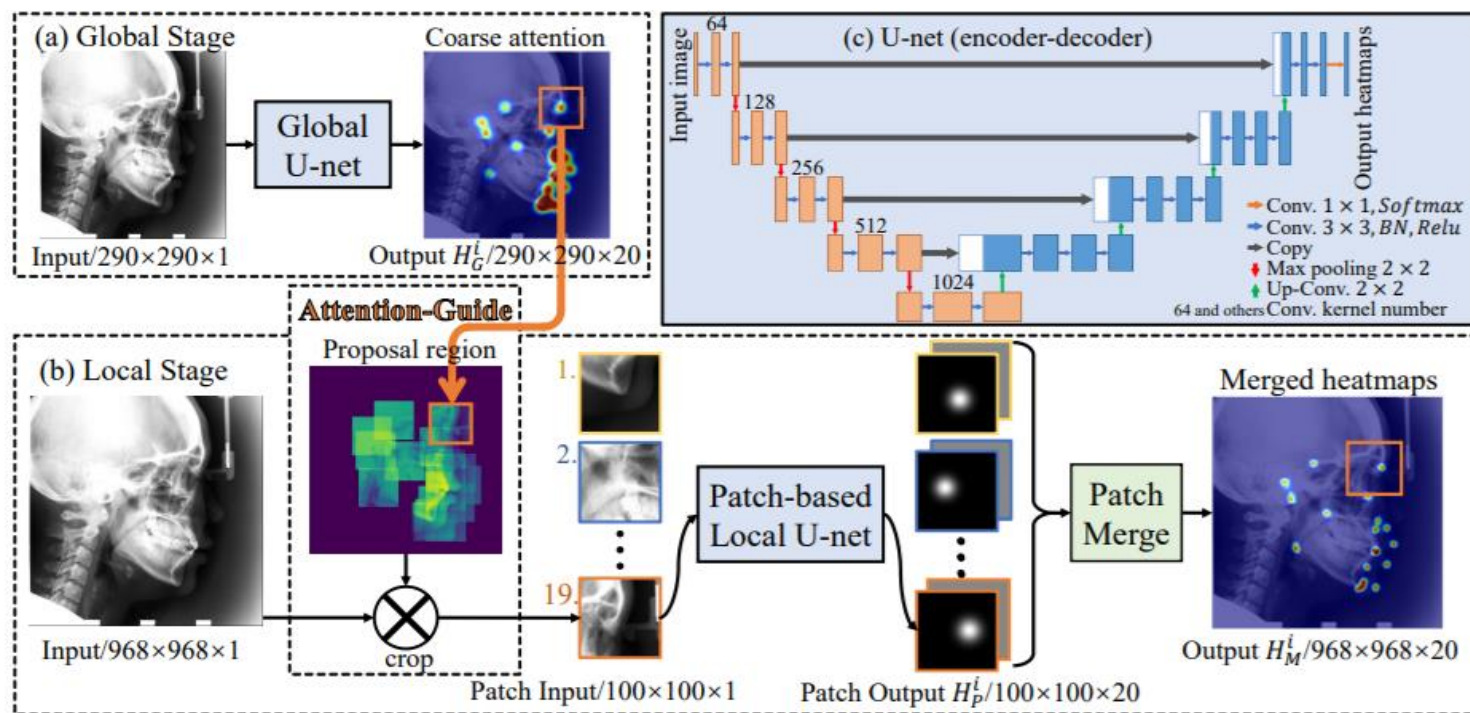
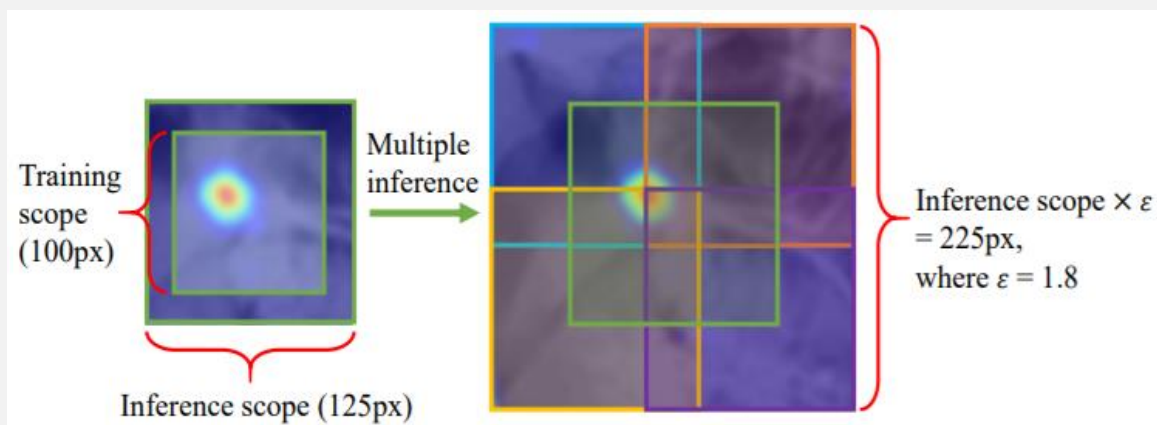
□ Two-stages:

1. global stage: coarse attention guide
2. local stage: patch-based U-Net +

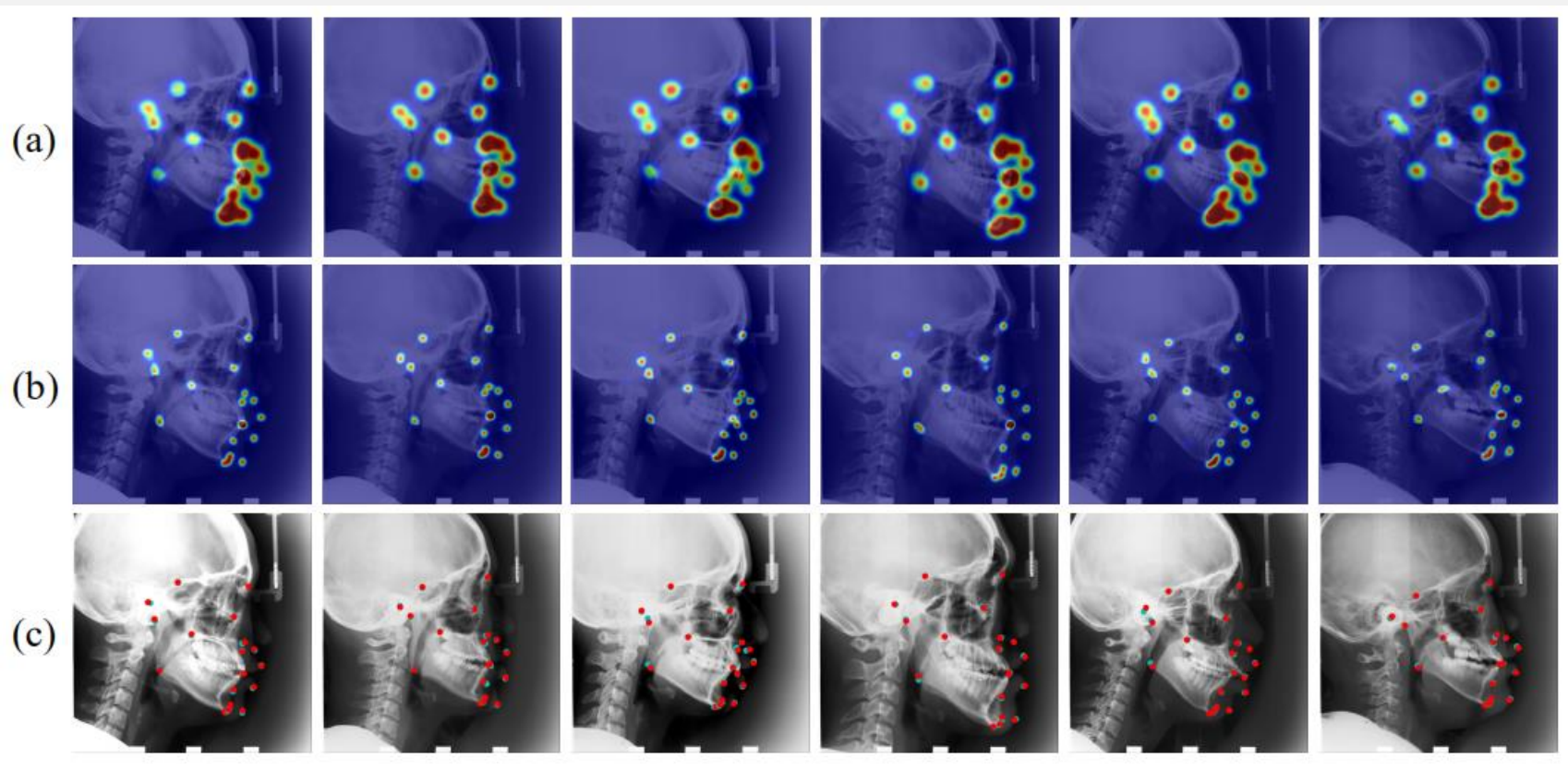
Expansive Exploration Strategy



□ Expansive Exploration Strategy



□ Result





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Thank you