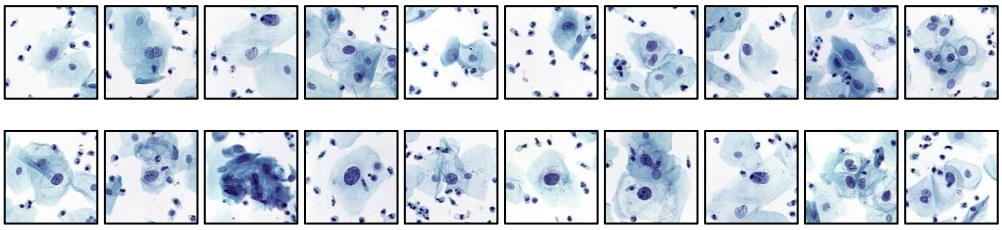
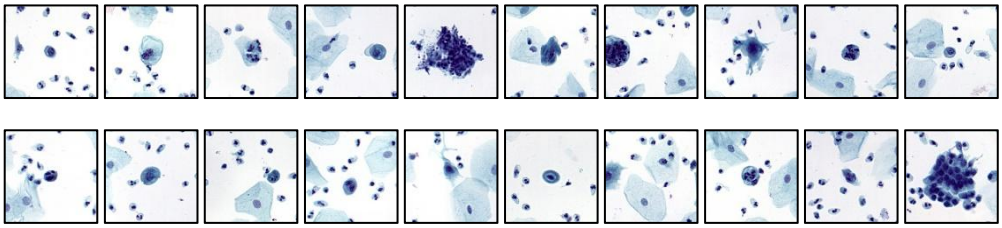
Here we list some examples of Top-k and Bottom-k patches in negative and positive WSIs as the qualitative result analysis.

Positive WSIs (A&B):

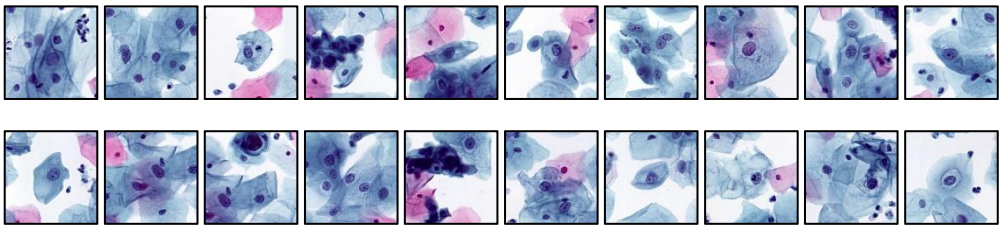
(A) Top-20 patches:



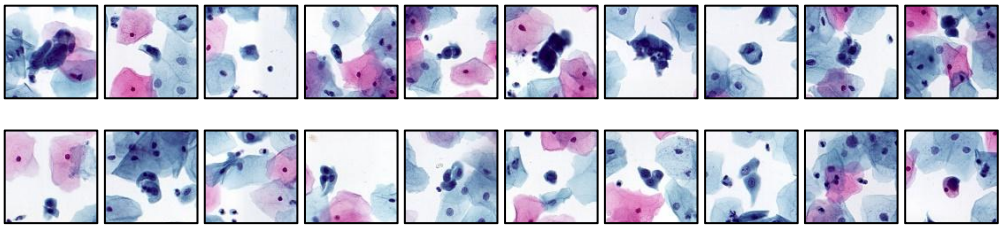
Bottom-20 patches:



(B) Top-20 patches:

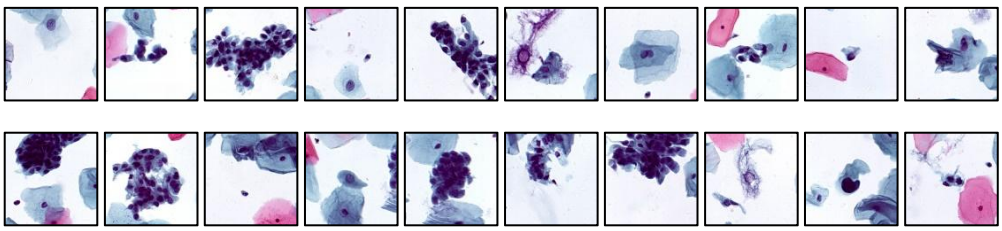


Bottom-20 patches:

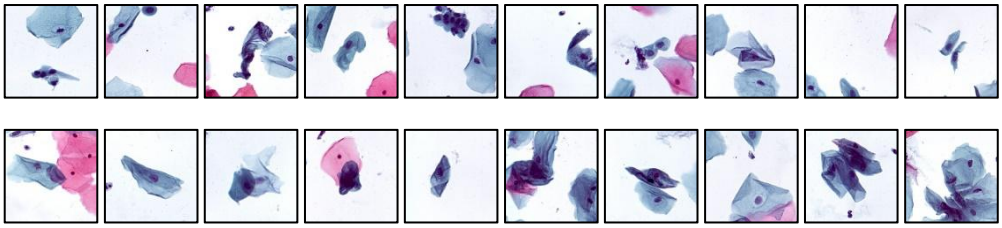


Negative WSIs (C&D):

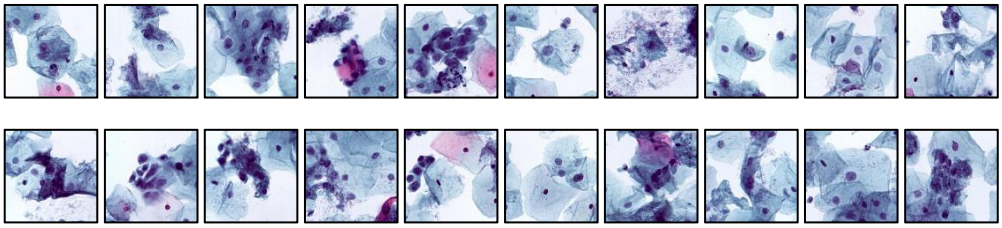
(C) Top-20 patches:



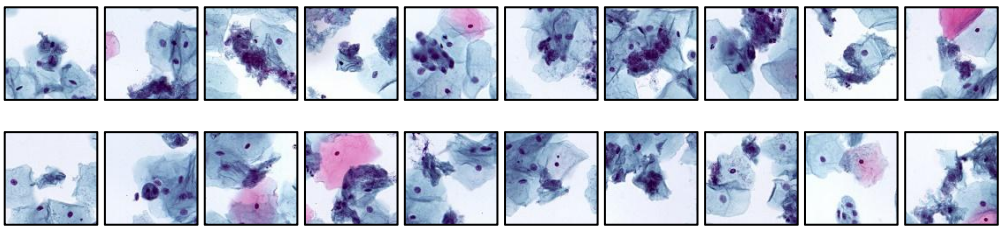
Bottom-20 patches:



(D) Top-20 patches:



Bottom-20 patches:



It can be observed that in positive WSIs (A&B), the karyoplasmic ratios of Top-20 patches are generally higher than those of Bottom-20 patches. Meanwhile, for negative WSIs (C&D) the difference in the karyoplasmic ratios between two groups of patches is trivial. In this way, the proposed method aims to extract the features from two groups of patches, and use contrastive learning to utilize the difference of negative and positive WSIs: enlarge the latent distance between Top-20 and Bottom-20 patches of positive WSIs, and reduce the latent distance between Top-20 and Bottom-20 patches of negative WSIs.