

# PATIENT-LEVEL CLASSIFICATION FOR BREAST CANCER METASTASES

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## ABSTRACT

Patient-level classification is an essential task for breast cancer patient’s diagnosis and treatment. In this paper, we propose a method to automatically predict pN-stage for whole slide images by leveraging multi-scale features and path aggregation. We first train a slide-level classifier with hard case mining to generate heatmaps of each WSI. Next, features extracted from those heatmaps are used to train a random forest classifier by rule-based criteria. pN-stages of patients are finally determined by our prediction results.

*Index Terms*— Camelyon17, Deep learning, pN-stage Classification, Breast Cancer, multi-scale features

## 1. METHODS DIFFENCES

There is an important change in our model. We add global convolutional blocks and boundary refined blocks to features at each level. The modified model can better capture the tumor boundaries and handle the itc cases.

## 2. RESULTS

We test our model on 100 slides (20 patients) each time. The average slide-level accuracy of our model is 0.93, and average kappa score is 0.93.