

Vision transformer-based model for gastric cancer detection and classification using weakly annotated histopathological images

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Abstract— Gastric Cancer (GC) is the fifth most diagnosed cancer worldwide. An early diagnosis is a hope for patients suffering from GC. A biopsy is a procedure that helps detect abnormal and suspicious areas to determine whether cancer cells are in the stomach. Tissue samples collected through biopsy are stained using Hematoxylin and Eosin (H&E) and digitalized through scanning to produce a whole slide image (WSI) needed for further analysis. Recently, most prognostics have proven effective using artificial intelligence techniques combined with related computer aid detection systems. This research used a vision transformer to detect and classify gastric cancer from weakly annotated tissue images. After acquiring normal and cancer histopathological samples, we applied the vision transformer (ViT) model for binary classification. We generalized our approach by performing region-based prediction on unannotated tissue samples. The proposed approach will ease diagnosis and support pathologists in decision-making.

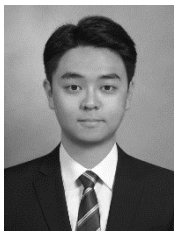
Keywords— Gastric Cancer, Vision Transformers, Whole Slide Images, Weakly Annotated Images



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