

A Spatial Attention Guided Deep Learning System for Prediction of Pathological Complete Response Using Breast Cancer Histopathology Images

HONGYI DUANMU^{1,*}, SHRISTI BHATTARAI², HONGXIAO LI¹¹, ZHAN SHI¹, FUSHENG WANG^{1,3}, GEORGE TEODORO⁴, KEERTHI GOGINENI^{5,6,7}, PREETI SUBHEDAR⁷, UMay KIRAZ⁸, EMIEL A.M. JANSSEN^{8,9}, RITU ANEJA¹⁰, AND JUN KONG^{11,12*}

¹Department of Computer Science, Stony Brook University, NY, USA, ²Department of Biology, Georgia State University, Atlanta, GA, USA, ³Department of Biomedical Informatics, Stony Brook University, NY, USA, ⁴Department of Computer Science, Federal University of Minas Gerais, MG, Brazil, ⁵Department of Hematology-Medical Oncology, Winship Cancer Institute, Emory University School of Medicine, GA, USA, ⁶Department of Surgery, Winship Cancer Institute, Emory University School of Medicine, GA, USA, ⁷Georgia Cancer Center for Excellence, Grady Health System, ⁸Department of Pathology, Stavanger University Hospital, Stavanger, Norway, ⁹Department of Chemistry, Bioscience and Environmental Engineering, University of Stavanger, Norway, ¹⁰School of Health Professions, University of Alabama at Birmingham, AL, USA, ¹¹Department of Mathematics and Statistics and Computer Science, Georgia State University, GA, USA, and ¹²Winship Cancer Institute, Emory University, GA, USA

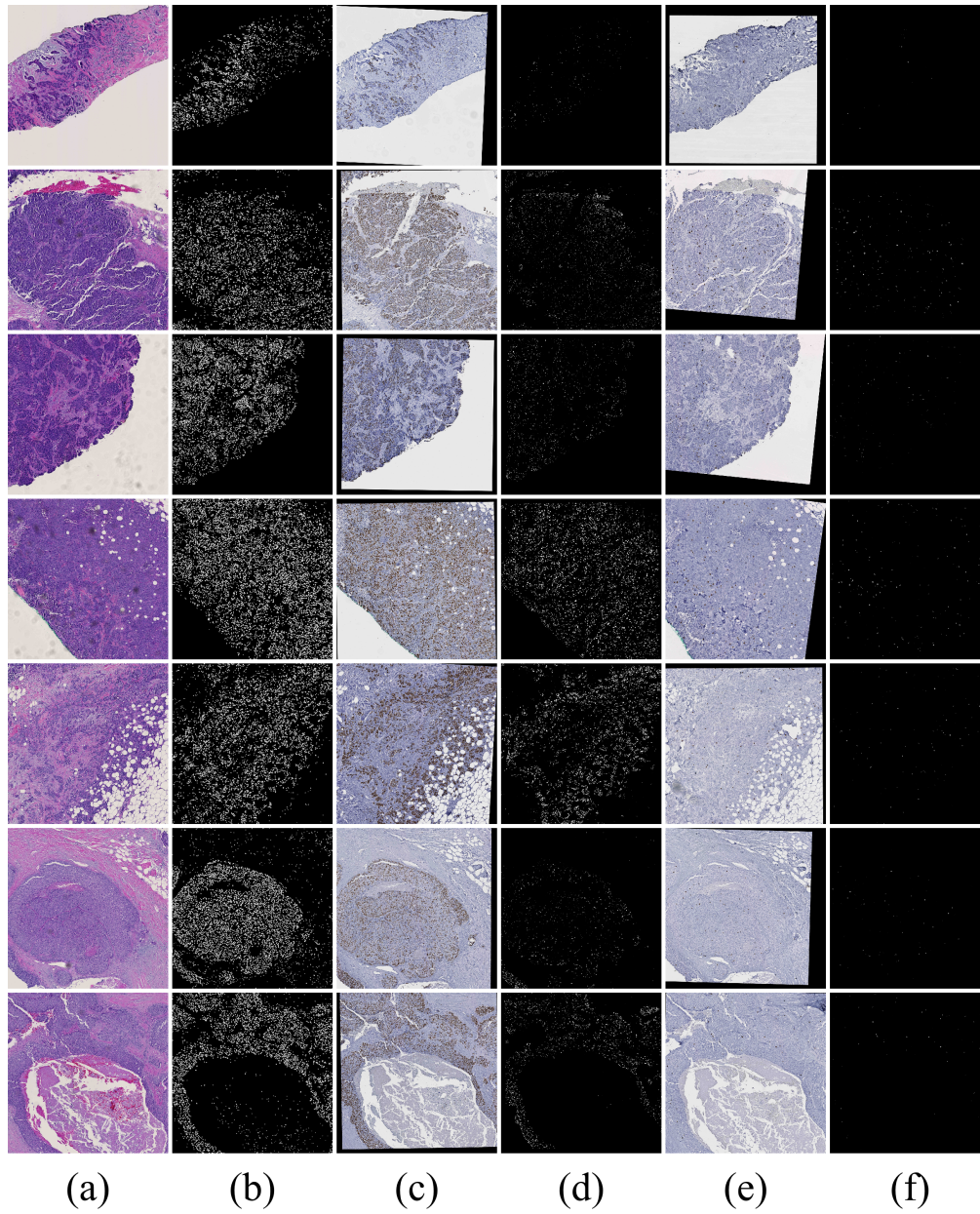


Fig. S1. Typical results of image registration, tumor cell segmentation, and biomarker segmentation. (a) original HE images; (b) segmented tumor cells from HE images, (c) registered Ki-67 images; (d) identified Ki-67 biomarkers, (e) registered PHH3 images; and (f) identified PHH3 markers.