2011-086 Novel Local Morphologic Scale: Applications in Disease Diagnosis and Prognosis

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Technology description

Rutgers scientists have developed a novel local morphologic scale (LMS) to rapidly and automatically select, quantify and classify tissue/specimen topologies using parallelized computations. This unique tool has the ability to define features for every special image location and generate subsequent scene segmentation and classification for each location. Further this technology is free from shape constraints and generates output based on local structure attributes of complex histological images. This innovation has been successfully utilized in discriminating tumor versus stromal regions by classifying oncogenic tumor infiltrating lymphocytes (biomarker) in ovarian cancer tissue microarrays. Additionally, this technology has been applied across 3 other domains (prostate, breast) under two different stains illustrating its robustness to domain selection.

Timely and accurate diagnosis of disease pathologies is critical to providing effective treatment to patients. Rutgers scientists have developed a novel local morphologic scale (LMS) to rapidly and automatically select, quantify and classify tissue/specimen topologies using parallelized computations. This unique tool has the ability to define features for every special image location and generate subsequent scene segmentation and classification for each location. Further this technology is free from shape constraints and generates output based on local structure attributes of complex histological images. This innovation has been successfully utilized in discriminating tumor versus stromal regions by classifying oncogenic tumor infiltrating lymphocytes (biomarker) in ovarian cancer tissue microarrays. Additionally, this technology has been applied across 3 other domains (prostate, breast) under two different stains illustrating its robustness to domain selection. This technology can be immensely useful to identify regions of interest, model heterogeneity of the underlying topology and generate digital signatures. It can also be used to train supervised classifiers to identify similar structural signatures in an image and therefore reduce or eliminate and observer variability.

Institution

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