

Multi-Class Cell Detection Using Spatial Context Representation



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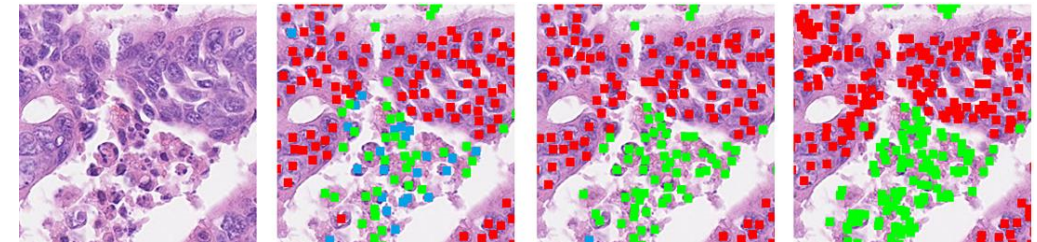
Problem and Motivation

In Cell Classification, *Appearance is often not enough!*
Pathologists rely on both appearance and spatial context.

Spatial Context = spatial distribution of the various cell classes in the surrounding neighborhood.

Method: Multi-Class Spatial Network (MCSpatNet)

- Joint cell detection and classification: using *both visual and spatial contexts*.
- Explicitly model spatial context: *Ripley's K function*.
- Learn *spatial-context-aware* feature representation: *multi-task learning + deep clustering*.
- *SOTA cell classification* performance.



w/o Spatial
Context

MCSpatNet
(Ours)

Ground Truth

