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.