Introduction

1. P1-2, Geo-eco, hyperspectral imaging, spatial transcriptomics -> demand of spatial dependent dependency among features
2. P3, existing works and limitation, without such a possibility
3. P4, our solution
4. P5, contribution: The first method of, rigorous statistical model

Preliminary

Notation

Robust-mixture regression, MM-estimator, Markov-random-field, segmentation

Problem formulation: Outlier form?

Methods

1. Main algorithm
2. K, lambda, robustness parameter? (level of trimming)
3. Theorem of main algorithm? Sensitivity, specificity, convergence
4. Inference

For a given region, compute the number of circle shape of certain diameter that could cover the whole region.

For a given certain and a diameter, compute the statistical significance of the robust regression model within the circle region.

Theorem?

1. Inference+, kernel (future work in discussion).

Experiments:

Simulated experiments (Performance, K, center, outlier, inference, …)

Ablation study (if we need ablation study on real data?)

Real example:

Spatial transcriptional

Geo-eco