

Classification of Land Types Through Clustering

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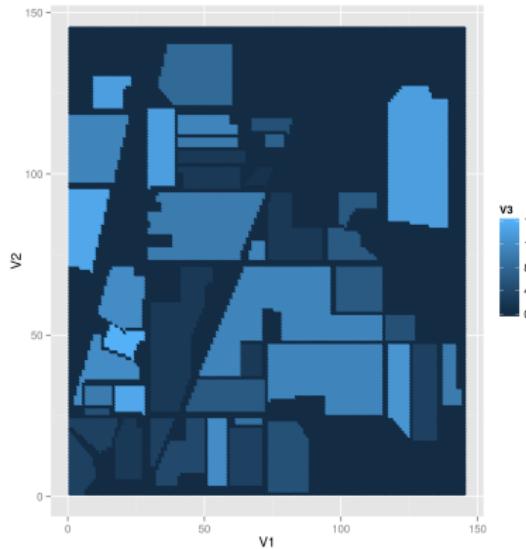
Math 191

June 2, 2015

Data Set

The `indian_pines` dataset consists of hyperspectral earth images of farmland

- ▶ Dimensions $145 \times 145 \times 200$
- ▶ Each image is 145×145
- ▶ Images were captured at 200 different wavelengths



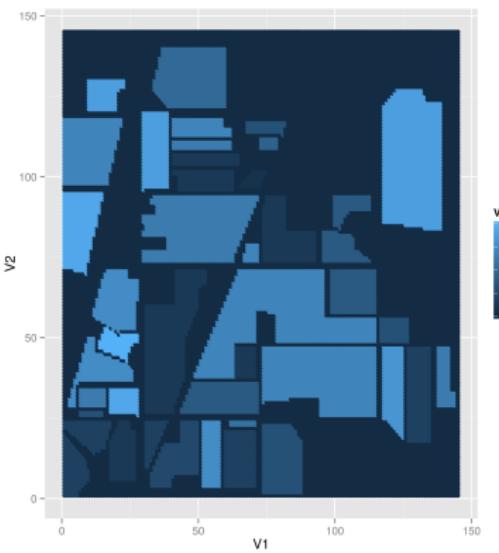
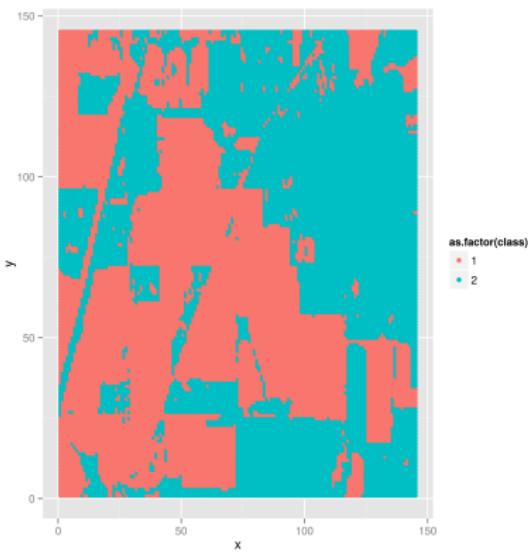


Exploration

Exploring the Data

KM2

K-Means



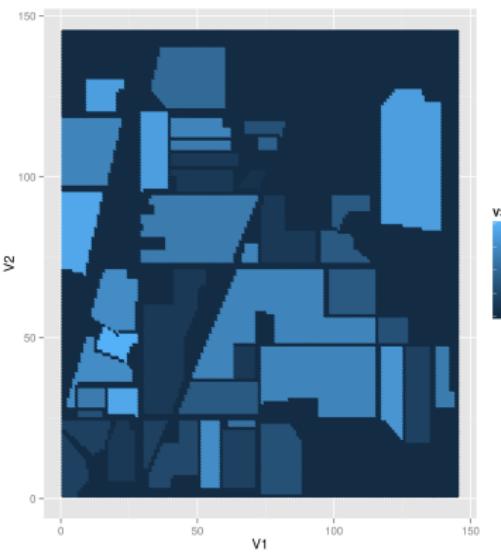
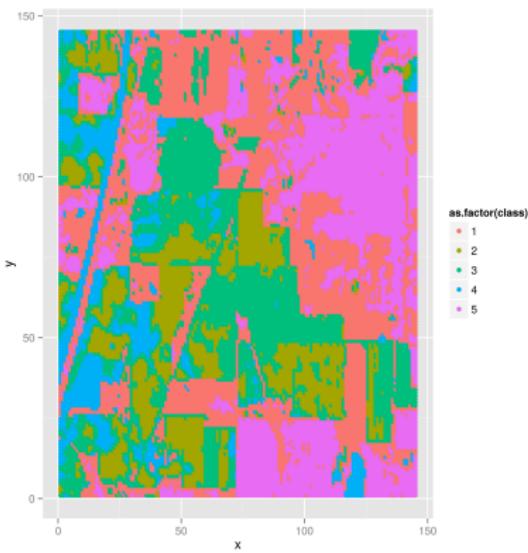
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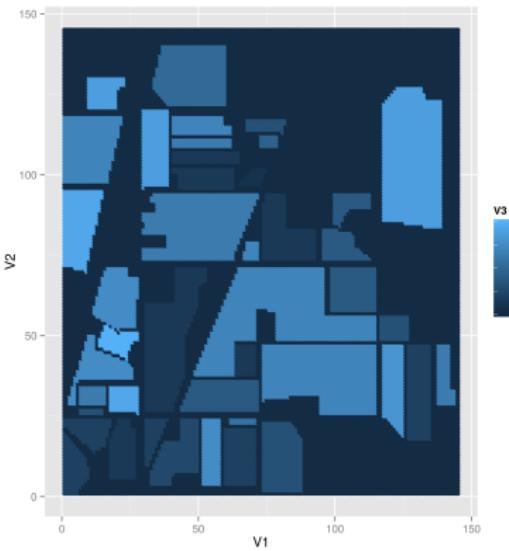
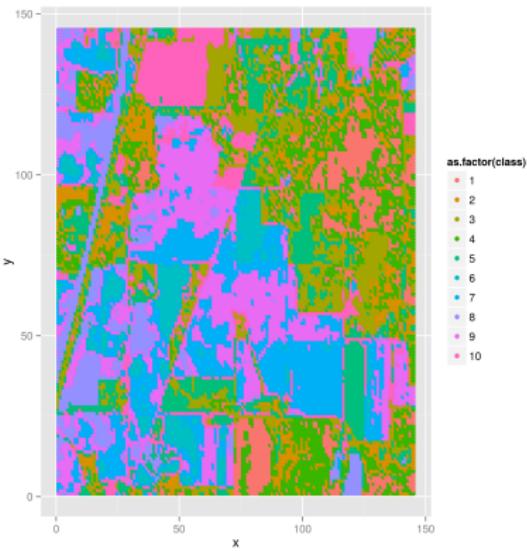
KM5

K-Means



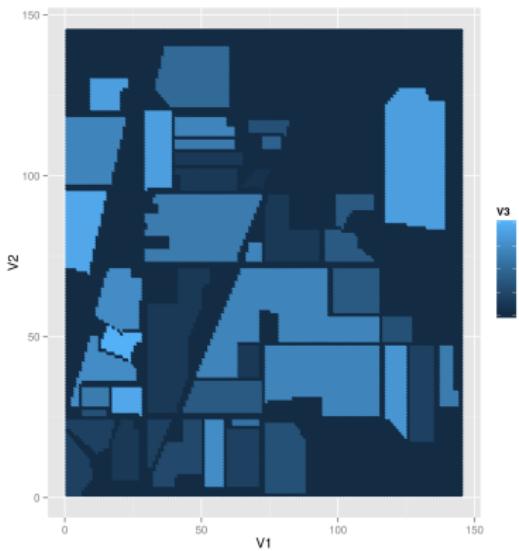
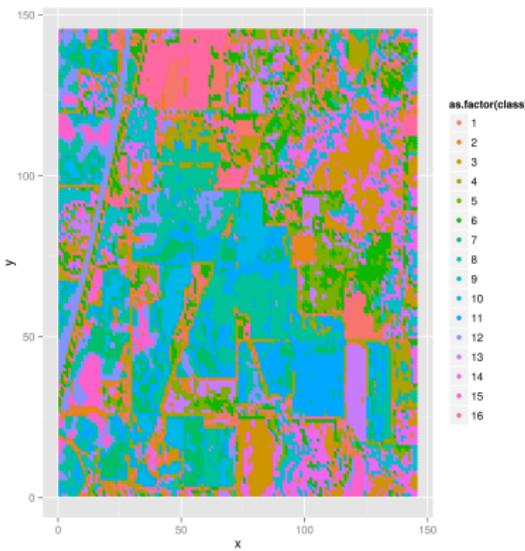
KM10

K-Means



KM16

K-Means



Introduction

Analysis

K-Means

SVM

Further Analysis

Conclusion

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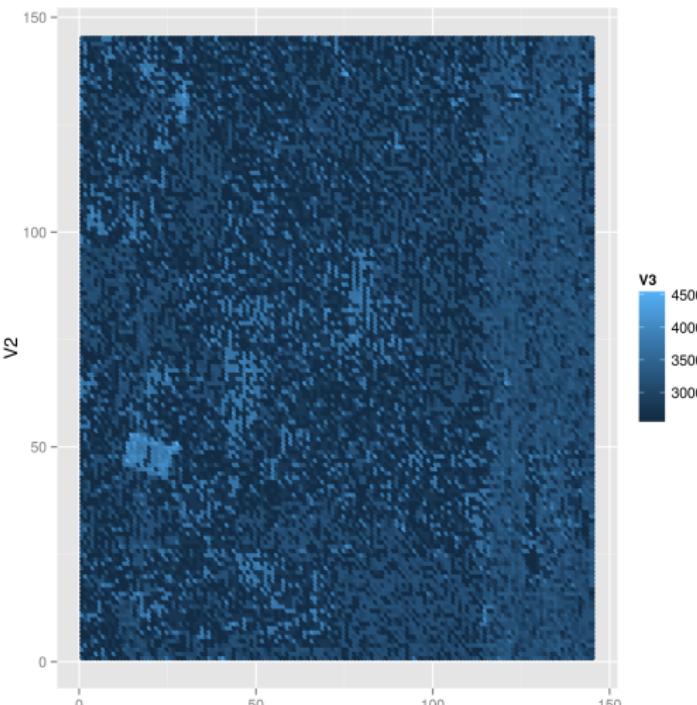
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Support Vector Machine

Noise Detection

Future Ideas



- ▶ Some of the data appears noisy
- ▶ This could negatively impact classification
- ▶ Detecting noise and biasing the model towards “clean” data could help the prediction

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Noise Detection

Histograms

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Results

Results

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