

AUTOMATED GATING OF FLOW CYTOMETRY DATA VIA MARKOV RANDOM FIELDS



Kevin Brosnan, University of Limerick

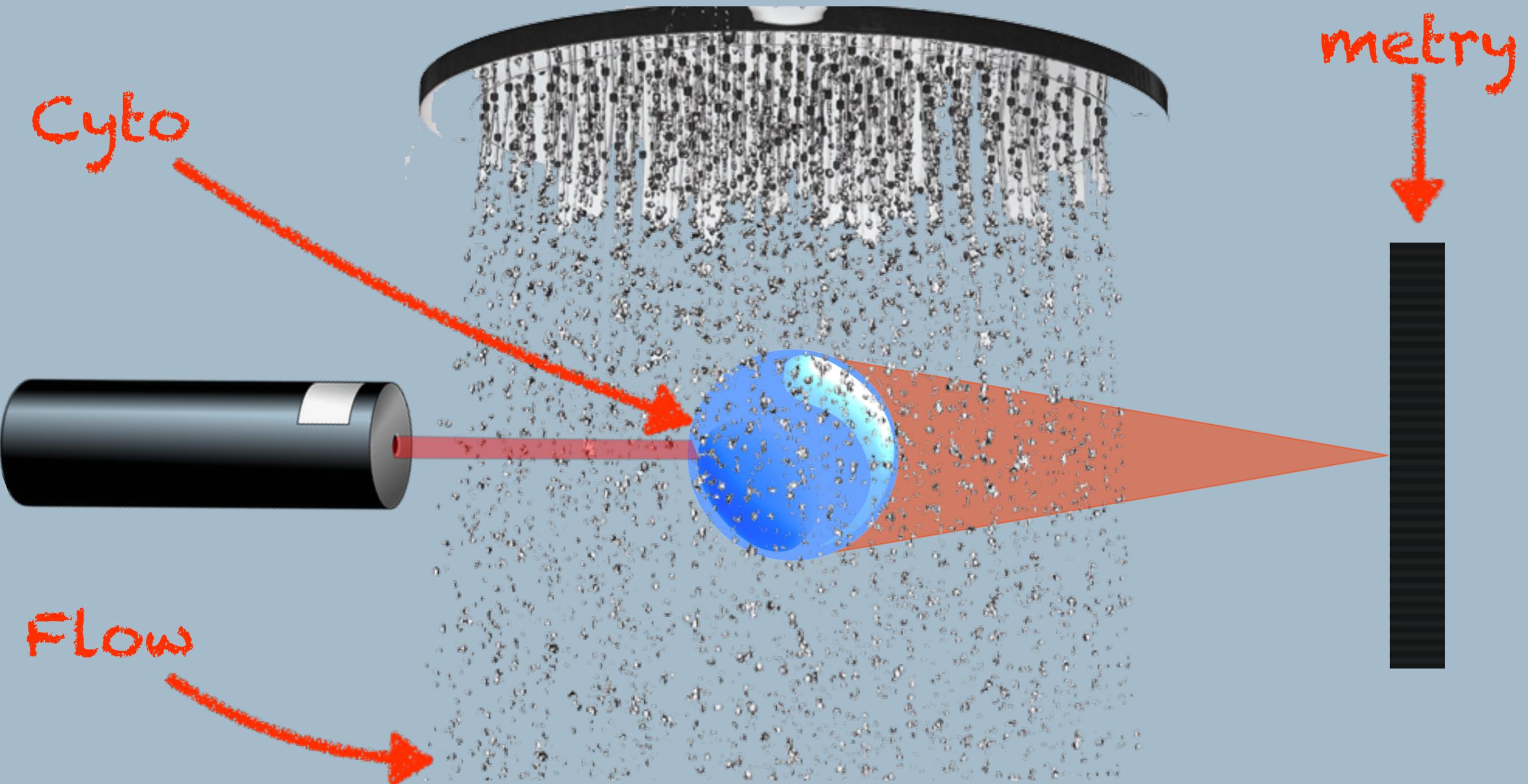
PRESENTATION OUTLINE

- ⦿ Flow Cytometry
- ⦿ Existing methods
- ⦿ Markov Random Fields
- ⦿ Cluster Identification
- ⦿ Results
- ⦿ Further Work



FLOW CYTOMETRY...

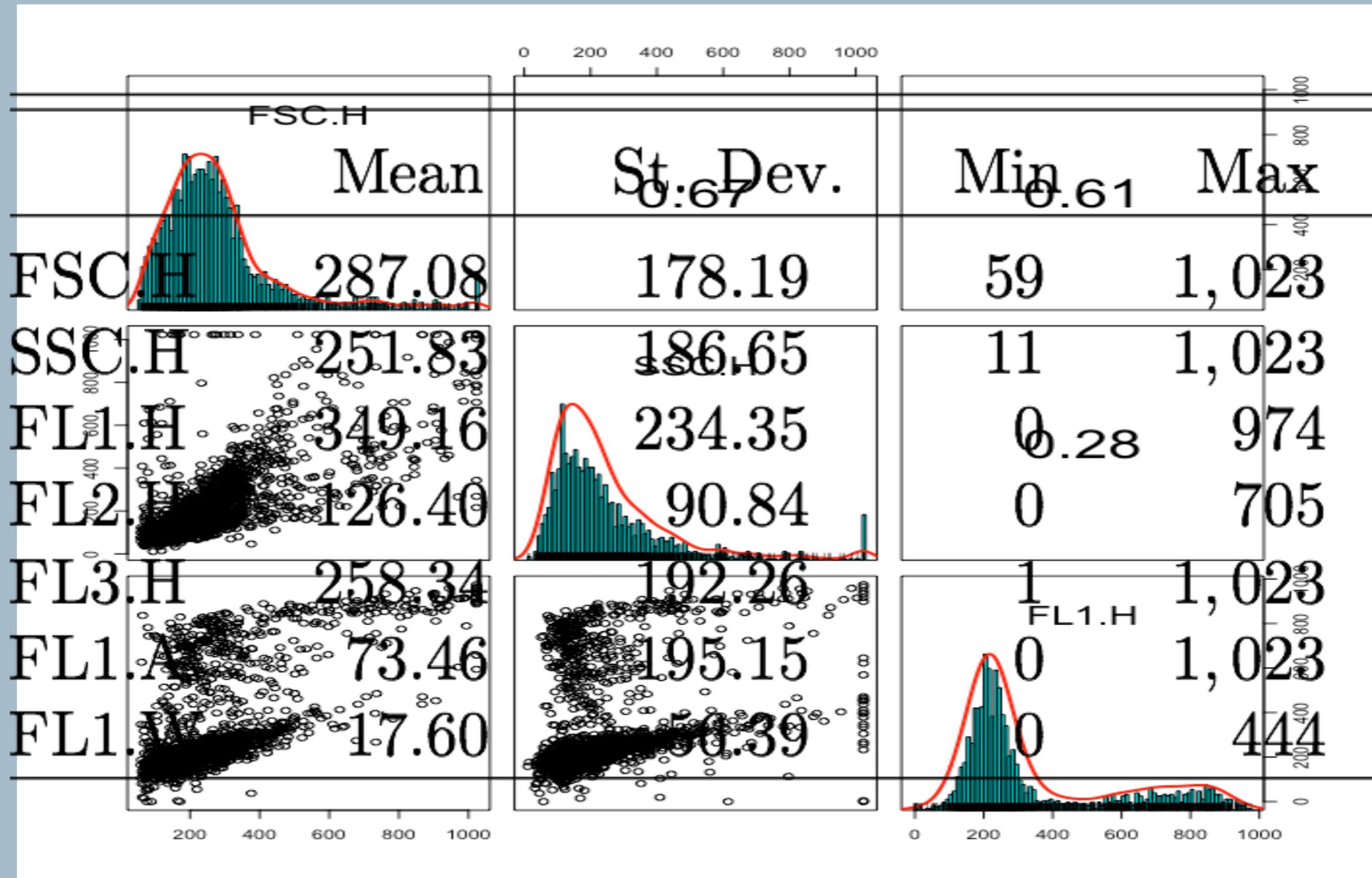
What is flow cytometry?



Data Storage...

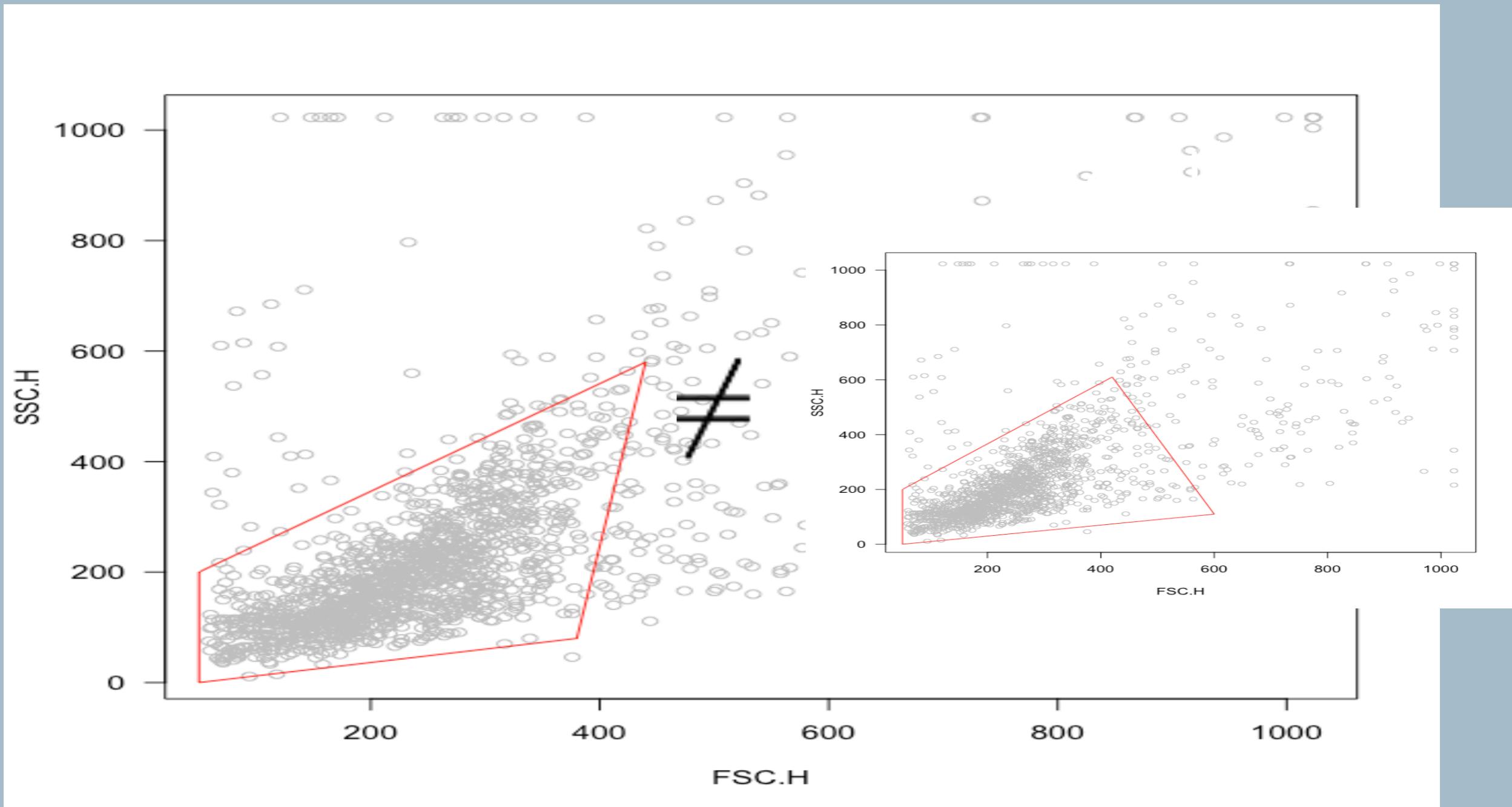


Flow Cytometry Data...

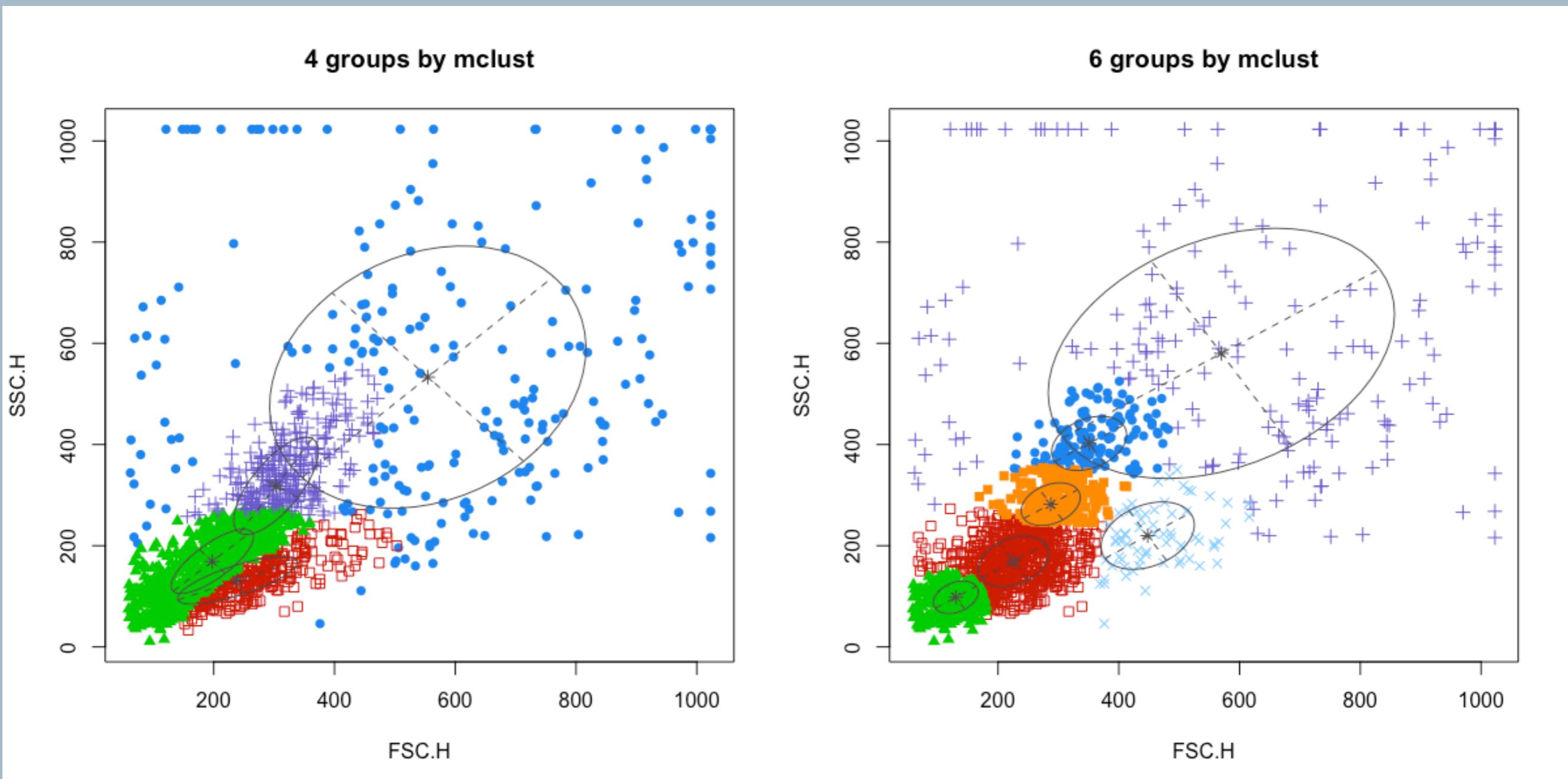


EXISTING METHODS...

Industry Standard...



Model Based Clustering...



t-distribution Mixtures...



ORIGINAL ARTICLE

Cytometry
PART A

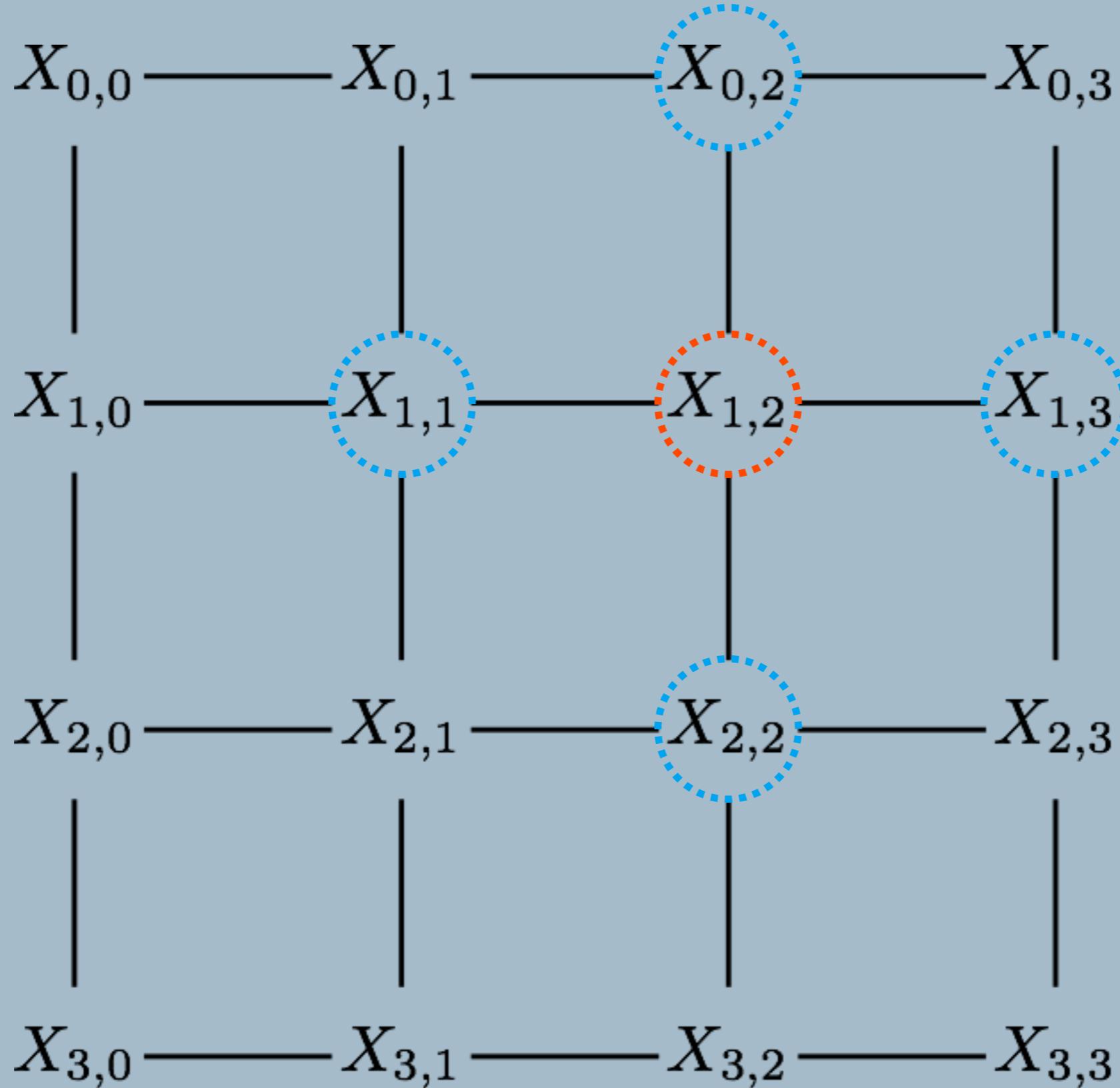
Journal of the
International Society for
Analytical Cytology

Automated Gating of Flow Cytometry Data via Robust Model-Based Clustering

Kenneth Lo,^{1*} Ryan Remy Brinkman,² Raphael Gottardo¹

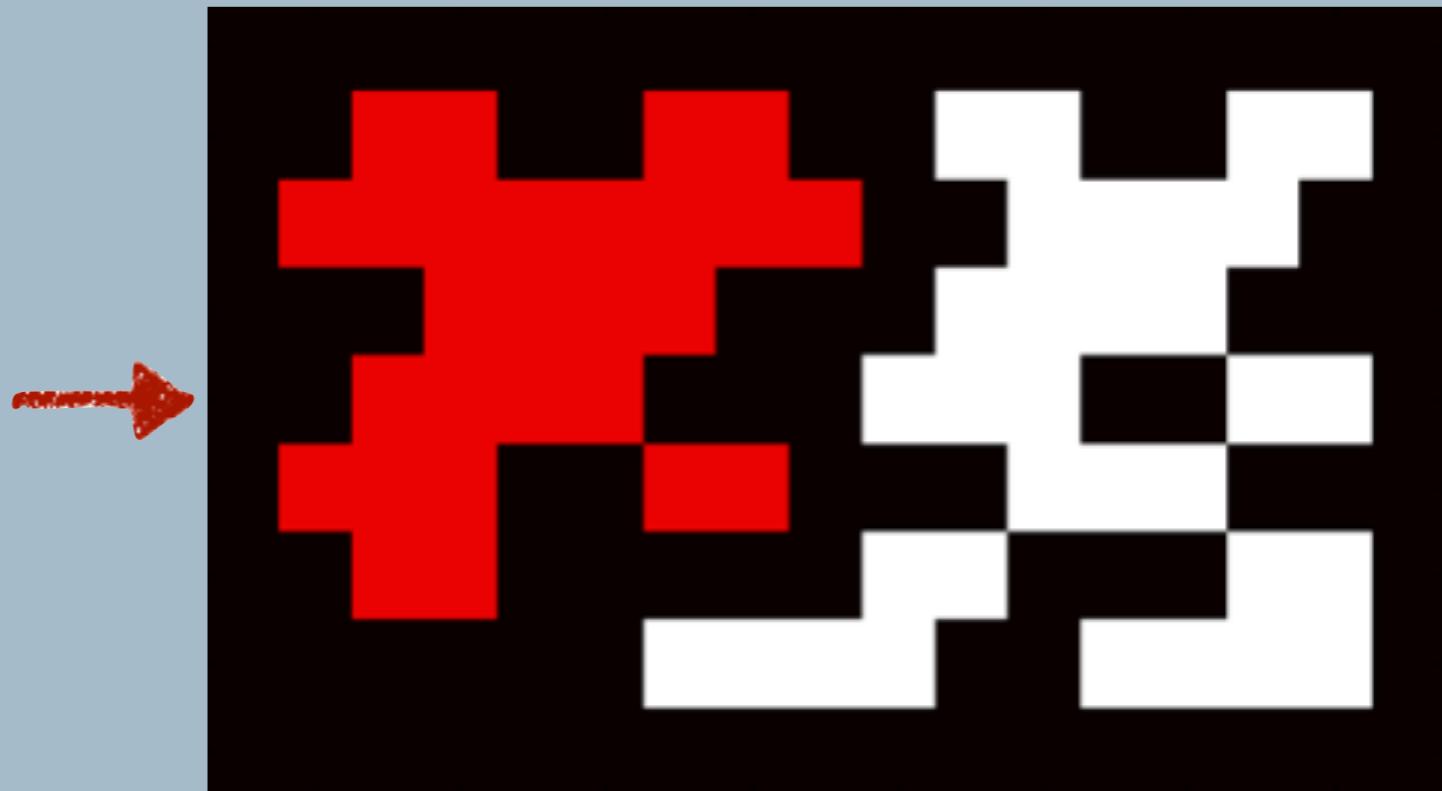
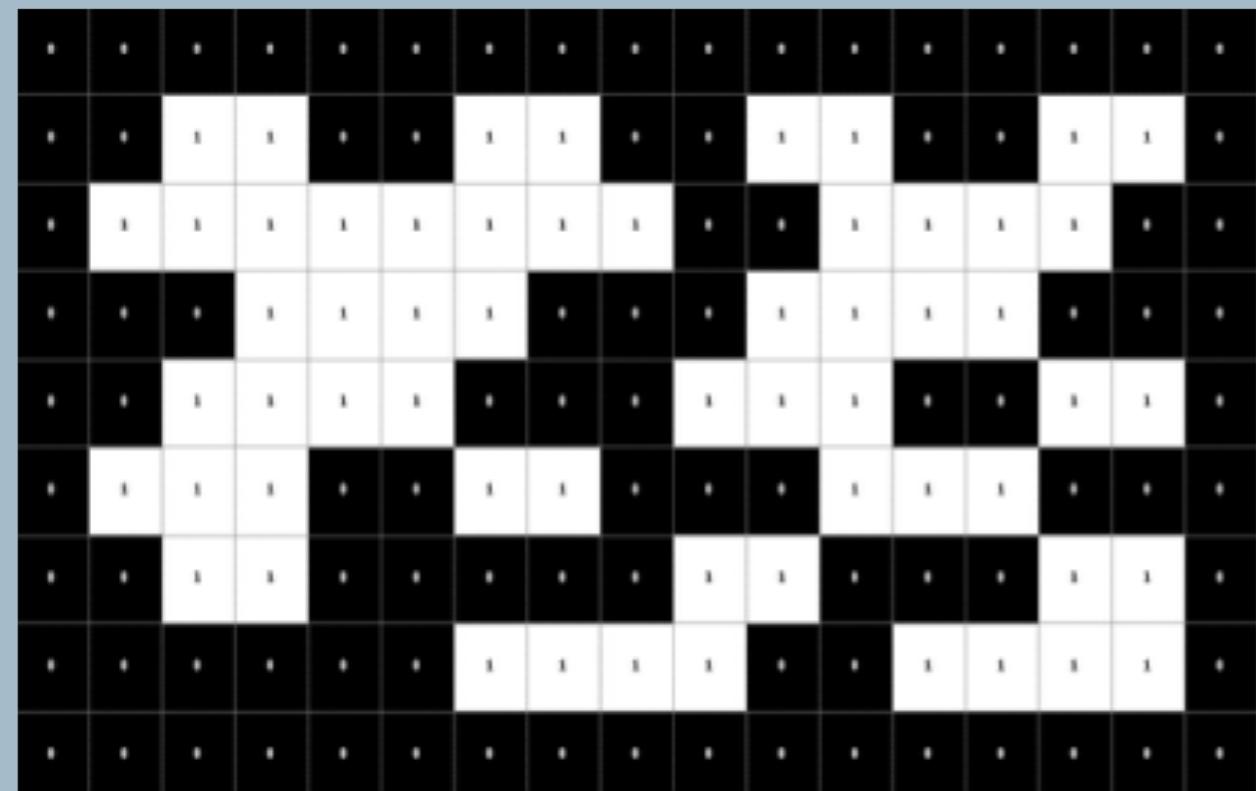


MARKOV RANDOM FIELDS...



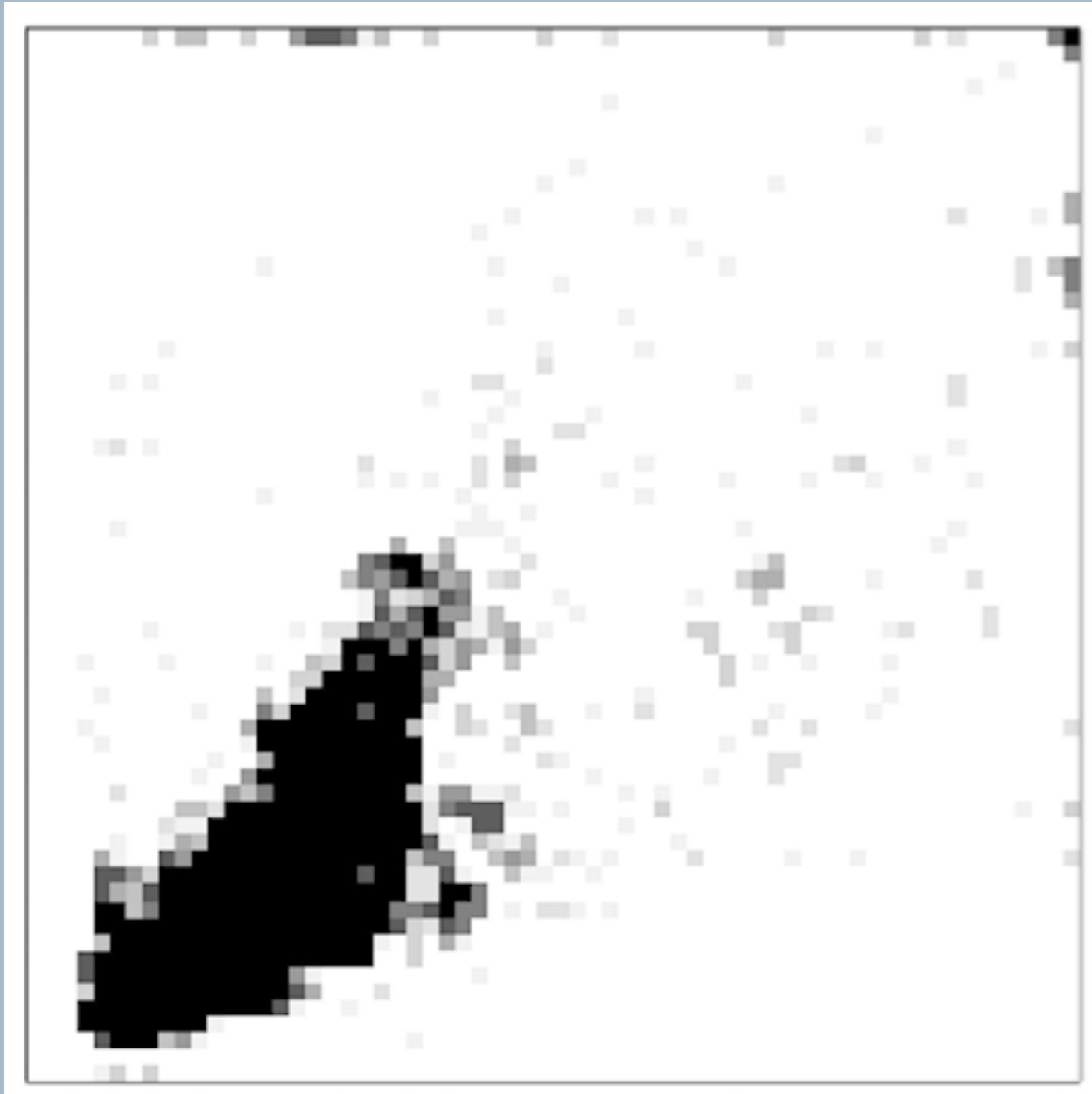
IDENTIFYING CLUSTERS...

Connected Components Labelling...



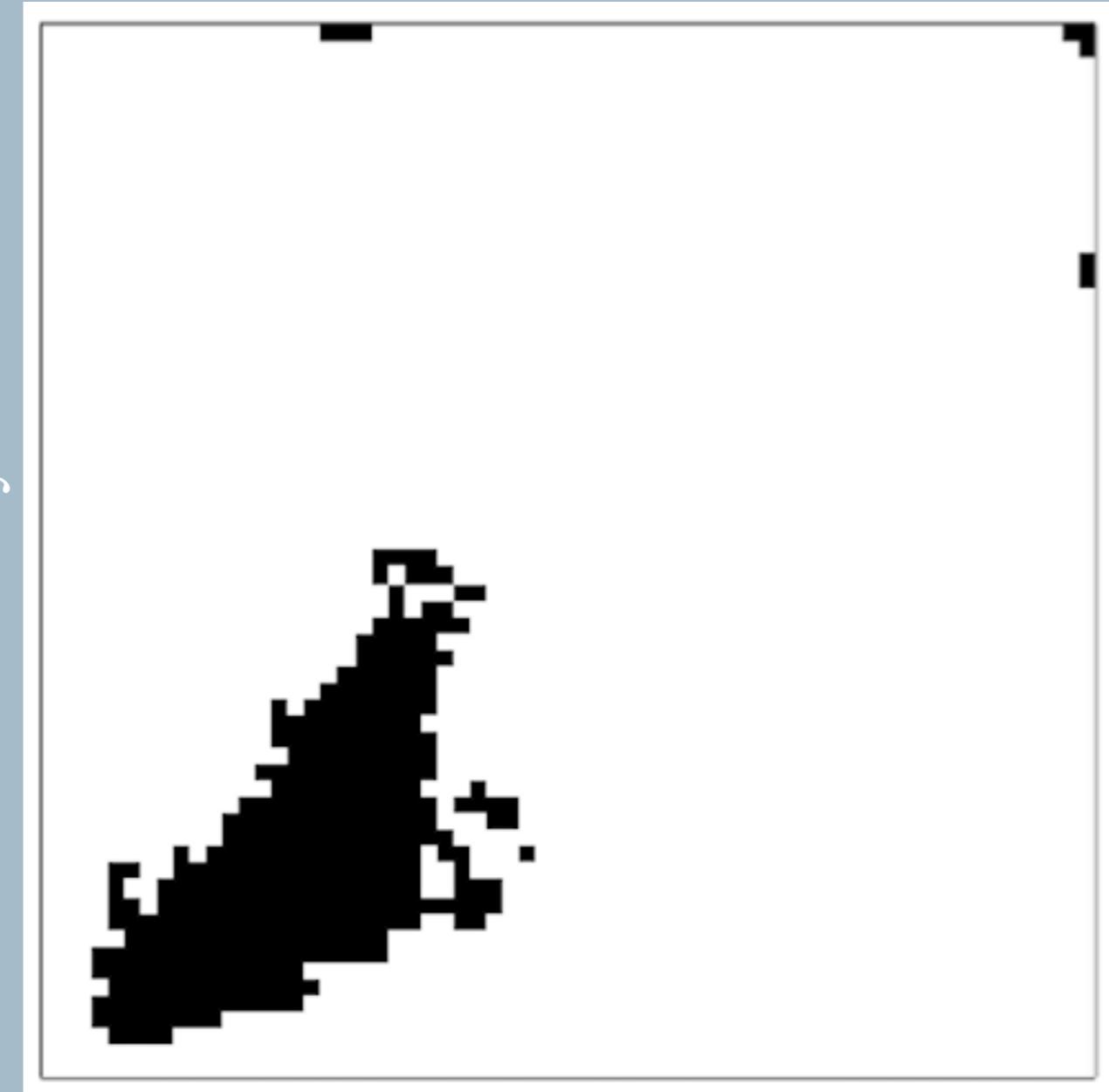
RESULTS...

Probabilistic Map



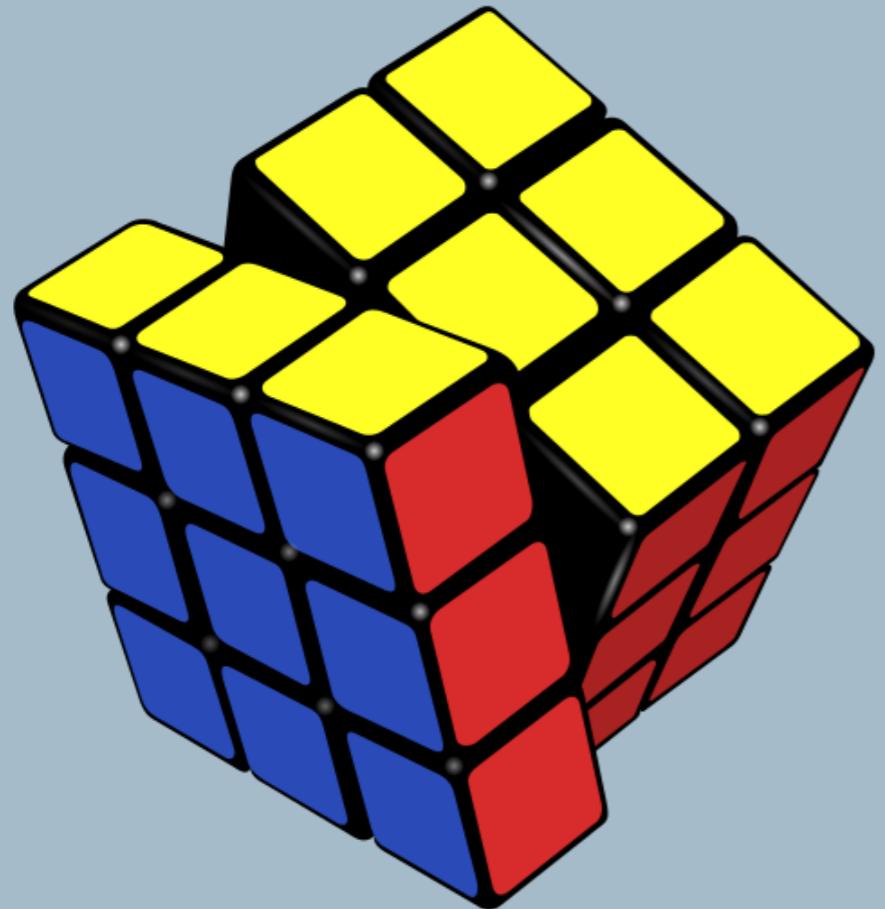
Area

Segmentation



Area

FURTHER WORK...



THANKS FOR LISTENING!
ANY QUESTIONS?

