

Interactive Adaptive Text Localization and Distinction

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Text Localization and Distinction

Text localization

- Automatic data extraction
- Automatic image indexing

Text distinction

- Improved automatic data extraction
- Automatic image indexing
- Document segmentation
- Decision making

Your marriage record is vital.
Be sure the information you give is complete and accurate.

MARRIAGE LICENSE
TO BE FILLED OUT BY COUPLE
(Please read instructions on rev)

PLEASE PRINT – USE BLACK INK

GROOM (MALE)	1a. FIRST NAME OF GROOM DAVID	b. MIDDLE NAME LEE
Zip Code 73203	3. USUAL RESIDENCE: a. STREET ADDRESS AND CITY OR TOWN 42 VALLEY VERDE, HENDERSON	
Home Ph.# 621-4403	5. FATHER: a. FULL NAME - FIRST, MIDDLE, LAST BENJAMIN DAVID SAMUELSEN	
Office Ph.# 533-4010	6. MOTHER: a. FULL NAME - FIRST, MIDDLE, MAIDEN NAME JESSICA STEWART	
BRIDE (FEMALE)	7a. FIRST NAME OF BRIDE Betsy	b. MIDDLE NAME Ann
Zip Code	9. USUAL RESIDENCE: a. STREET ADDRESS AND CITY OR TOWN Weston	
Home Ph.#	11. FATHER: a. FULL NAME - FIRST, MIDDLE, LAST Jose Thomas	
Office Ph.#	12. MOTHER: a. FULL NAME - FIRST, MIDDLE, MAIDEN NAME Mary Ann	
Blood relationship of groom to bride: NONE		On what island do you plan to be married? (Oahu, Hawai'i, Maui, Kaua'i, Lana'i or Moloka'i) MAUI
FORWARDING ADDRESS: (After Marriage) 42 VALLEY VERDE, HENDERSON		

CONFIDENTIAL INFORMATION

Related Work

Text localization

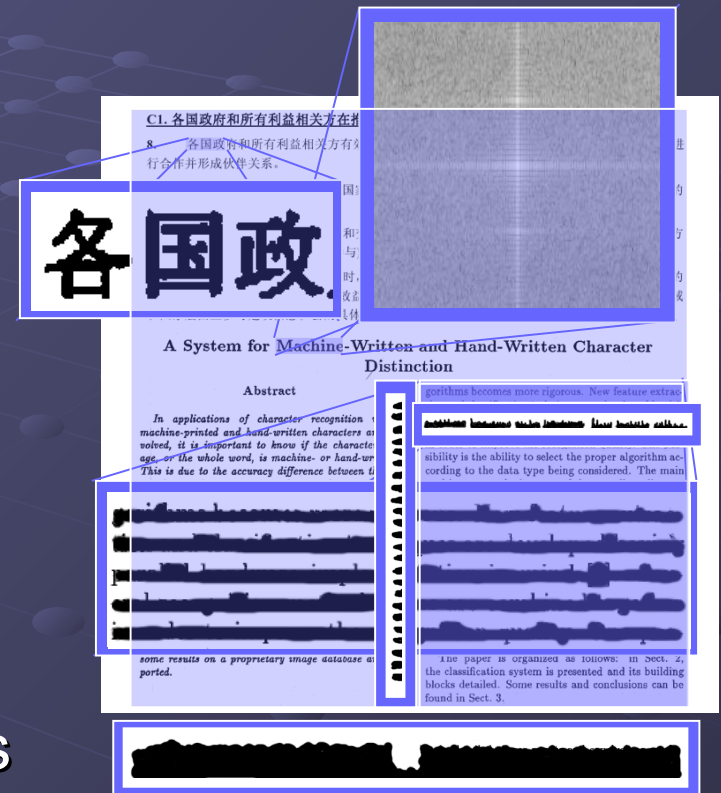
- Bottom-up
 - Connected component analysis
 - Texture analysis

Top-down

- Run-length smoothing
- Recursive projection profile cuts

Text distinction

- Connected component analysis
- Empirically determined heuristics



Nagao, G. A. Self, P. K. S. Joint Classification of Machine-Printed and Hand-Written Characters with an Expert System. In: Proceedings of the 1997 IEEE Conference on Document Analysis and Recognition, Vol. 1, 1997, pp. 100-103.

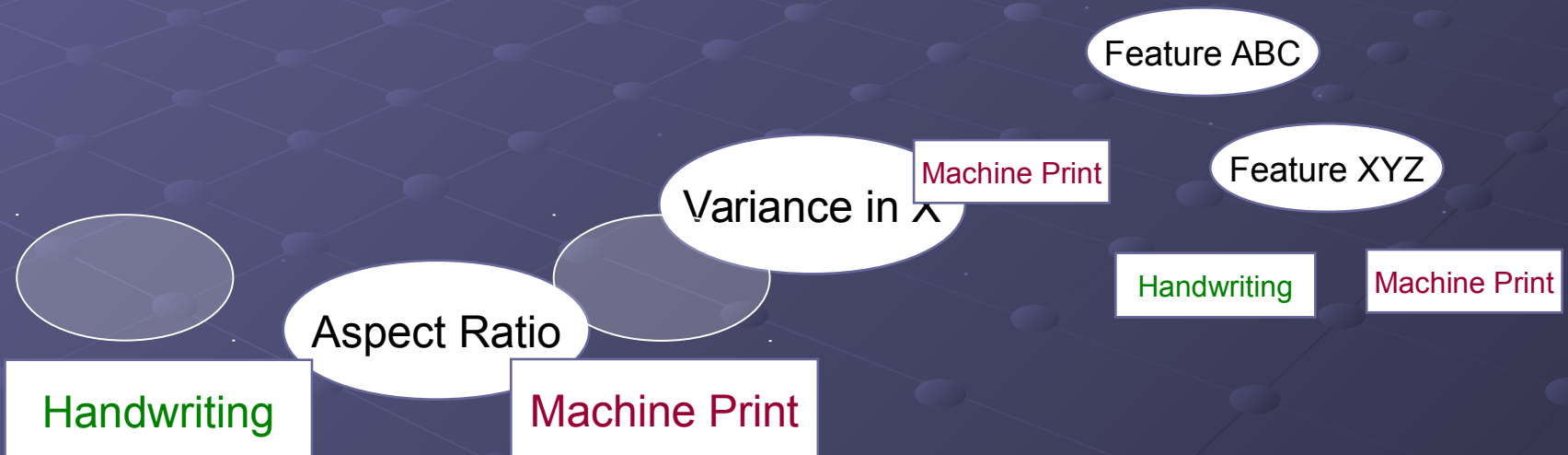
Document Images Using Cluster-Based Templates, IEEE Pattern Analysis and Machine Intelligence. Vol. 19. 1997.

Our Approach

- Threshold image
- Extract features
- Accumulate training samples
- Induce decision tree
- Contextual cleanup



Decision Tree Construction



Quinlan, J. R. "Induction of decision trees". *Machine Learning*, Vol. 1, 1986.

Contextual Cleanup

- Horizontally Adjacent
- Similar

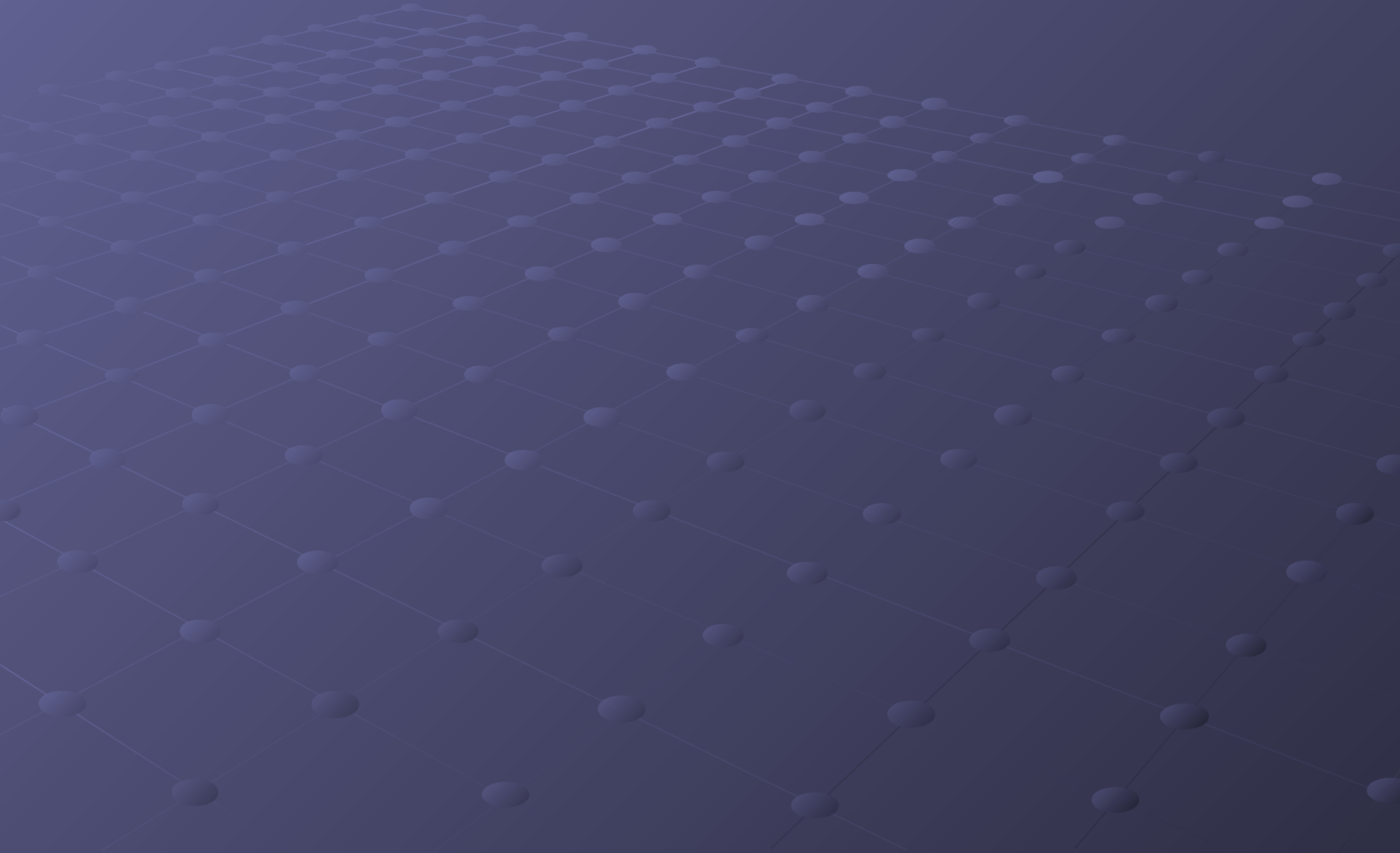
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government agency requiring your
d a number and that you meet all
ept for the number. A State or loc
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ou check "Other," you need to prov
efit for which a Social Security num
ment.

viding race/ethnic information is vo
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ct people. We do not reveal the id

w the month, day and full (4 digit)
n.

Demo



Future Work

- Analyze features
- Improve Contextual Cleanup
 - Context
 - Class prototypes
 - Classification confidence
 - Misclassification costs

Conclusion

- Adaptivity
- Interactivity
- Multiple Applications

Questions

