

# **Color Based Comic Strip Character Recognition**

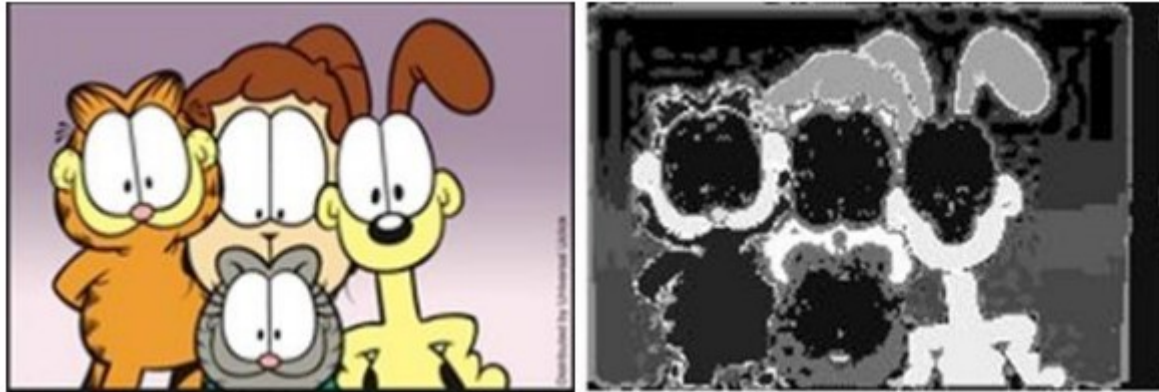
# Character recognition

- Face identification algorithms
- SIFT
- Custom recognition methods



# CHAR

- Convert frame to LAB color space
- Clustering colors



# CHAR

- Extract each cluster
- Apply filters and crop
- Compute color histogram
- Compare with training set
- Remove bad matches



# Results

- Training database

Garfield	Jon	Odie	Liz	Arlene	Nermal	Pooky
476	333	46	72	7	4	17

- Test database

Garfield	Jon	Odie	Liz	Arlene	Nermal	Pooky
273	165	20	13	3	0	0

- CHAR vs SIFT

Algorithm	Correct Detection	Incorrect Detection	Missed Detection
SIFT	163	71	278
CHAR	289	414	78

# SIFT confusion matrix

SIFT

Character	Garfield	Jon	Odie	Liz	Arlene	Nermal	Pooky	Not Detected
Garfield	0.26	0.02	0.01	0.01	0.06	0.00	0.00	0.63
Jon	0.02	0.51	0.02	0.01	0.00	0.00	0.00	0.44
Odie	0.00	0.06	0.06	0.00	0.00	0.00	0.00	0.89
Liz	0.00	0.08	0.08	0.08	0.00	0.00	0.00	0.75
Arlene	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
Nermal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pooky	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Background	0.10	0.23	0.61	0.06	0.00	0.00	0.00	0.00

Detection Result

# CHAR confusion matrix

		CHAR							
		Garfield	Jon	Odie	Liz	Arlene	Nermal	Pooky	Not Detected
Character	Garfield	0.48	0.28	0.00	0.18	0.00	0.01	0.00	0.04
	Jon	0.09	0.40	0.01	0.21	0.00	0.01	0.00	0.26
	Odie	0.21	0.34	0.10	0.10	0.17	0.00	0.00	0.07
	Liz	0.12	0.31	0.06	0.25	0.00	0.00	0.00	0.25
	Arlene	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
	Nermal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Pooky	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Background	0.25	0.18	0.03	0.46	0.04	0.02	0.02	0.00
		Garfield	Jon	Odie	Liz	Arlene	Nermal	Pooky	Not Detected
		Detection Result							

# Conclusion

- CHAR advantages...
- ...and disadvantages
- Future development