

Work achievement  
Document Analysis Group

## Text localization in comics

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# Plan

- 1 Introduction
- 2 Experiments and results
- 3 Conclusion

# Plan

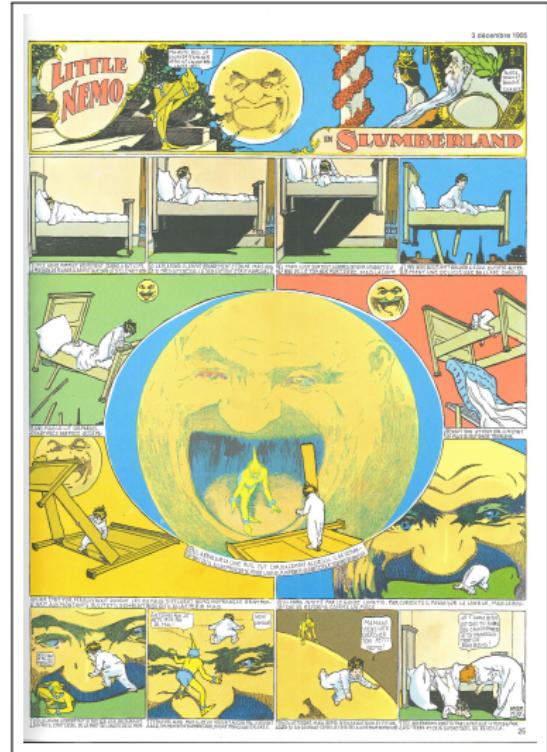
## 1 Introduction

- Context
- Optimal threshold selection
- Letter extraction 1
- Letter extraction 2
- Letter to lines

## 2 Experiments and results

## 3 Conclusion

# Context



<sup>1</sup> McCay, Little nemo, *Slumberland*, 1905

<sup>2</sup> Nicolas Roudier, *Les terres creusées*, 2011

# Optimal threshold selection



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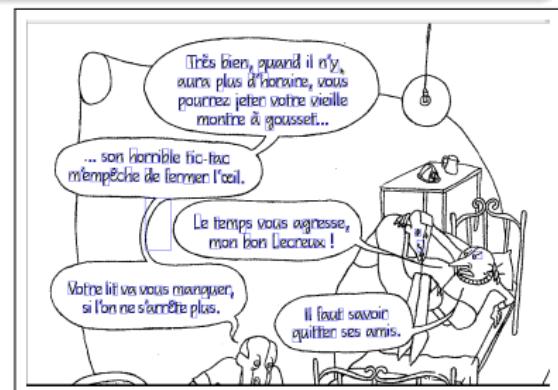
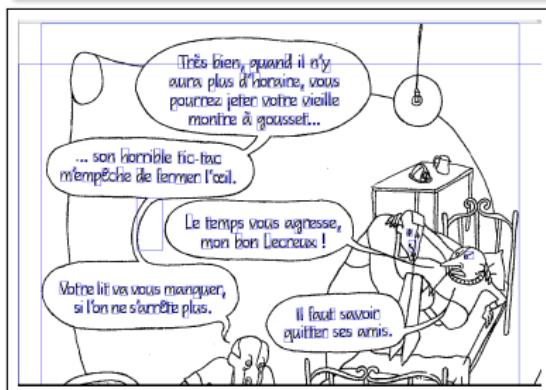
⇒



# Letter extraction

## Black on white connected components (CC) selection rules

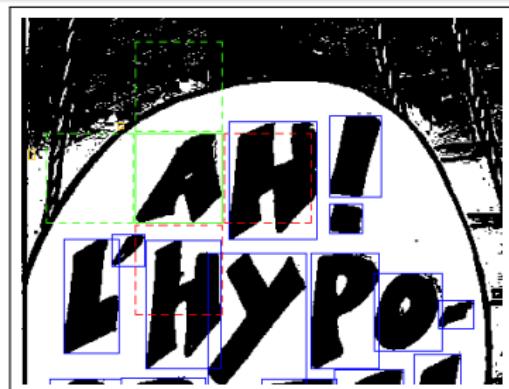
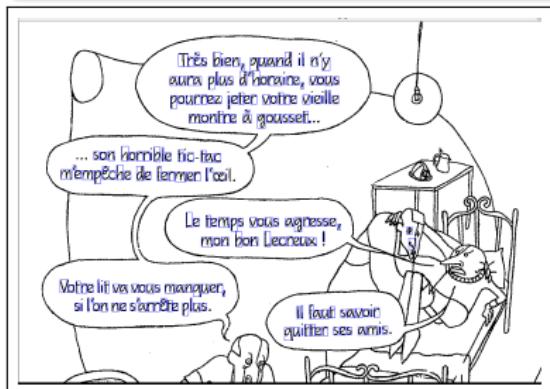
- 1 high contrast ratio
- 2 no overlapping
- 3 surrounded by other CC similar in height



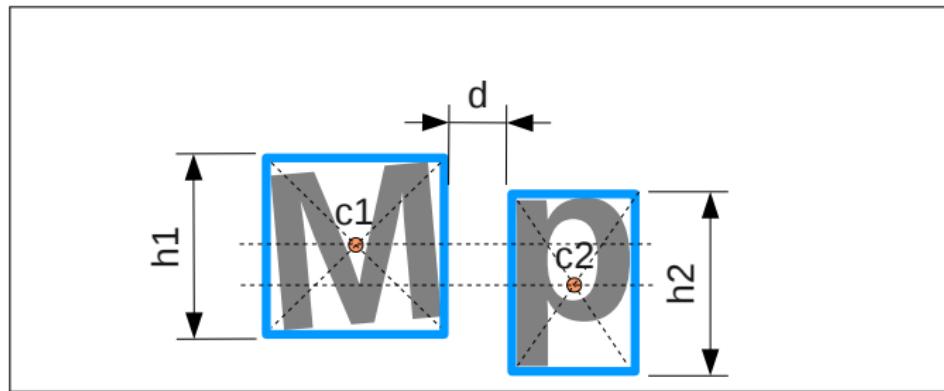
# Letter extraction

## Black on white connected components (CC) selection rules

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# Letter to lines



## Horizontal and vertical alignment

- 1  $d < \text{Max}(h_1, h_2)$
- 2  $c_{2y} \in [y_{1\min}, y_{1\max}]$

# Plan

## 1 Introduction

## 2 Experiments and results

- Dataset
- Ground truth
- Results

## 3 Conclusion

# Dataset



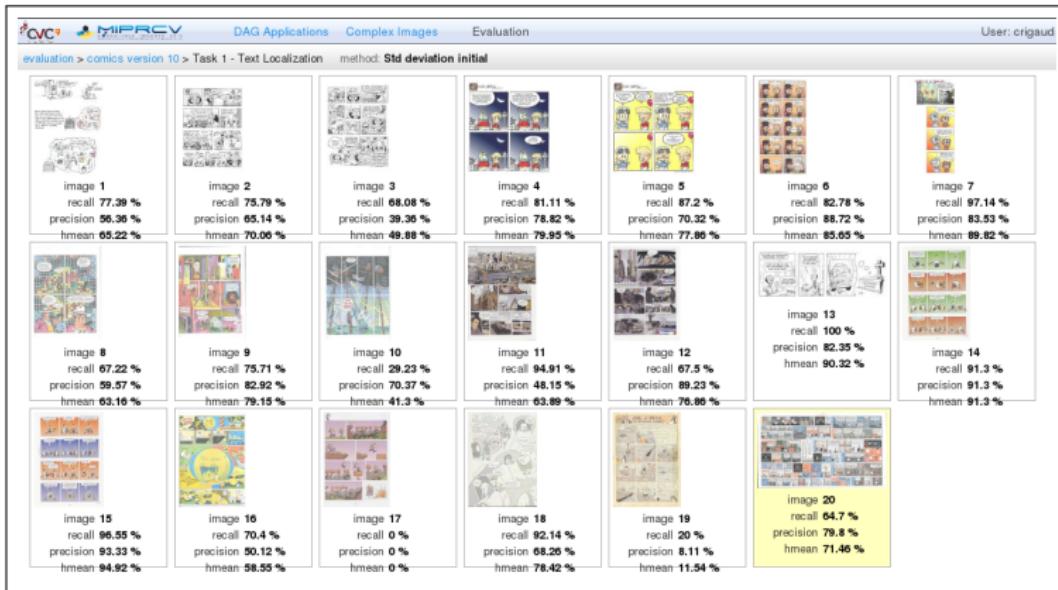
- ➊ Available at <http://dagdata/documents/> "Comics"
- ➋ 100 pages from 20 different authors
- ➌ > 5000 text lines

# Ground truth



- 1 Tool from L3i laboratory (La Rochelle, France)
- 2 20/100 pages
- 3 Line level

# Results



- ICDAR 2011 Robust Reading Competition - Challenge 1 : Reading Text in Born-Digital Images (Web and Email)<sup>1</sup>

<sup>1</sup>D. Karatzas, S. Robles Mestre, J. Mas, F. Nourbakhsh, P. Pratim Roy, *In Proc. 11th International Conference of Document Analysis and Recognition*, 2011

# Plan

1 Introduction

2 Experiments and results

3 Conclusion  
• Conclusion

# Conclusion perspectives

Before (1/05/12)

- ① Frame + text extraction<sup>1</sup>
- ② 5 ground truth pages

After (27/07/12)

- ① Improved text extraction
- ② 20 ground truth pages
- ③ Text validation
- ④ 1 publication (in progress)
- ⑤ Balloon detection

Thanks!

- ① Centre de Visión per Computador
- ② Document Analysis Group

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<sup>1</sup>Rigaud, C., Tsopze, N., Burie, J.-C., and Ogier, J.-M., Robust frame and text extraction from comic books *Lecture Note for Computer Science GREC'11*, 2011

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