

Color descriptor for content-based drawing retrieval



Christophe Rigaud^{1,2} - Dimosthenis Karatzas² - Jean-Christophe Burie¹ - Jean-Marc Ogier¹

¹Laboratory L3i, University of La Rochelle, Avenue Michel Crépeau 17042 La Rochelle, France

²Computer Vision Center, Universitat Autònoma de Barcelona, E-08193 Bellaterra (Barcelona), Spain
{christophe.rigaud, jean-marc.ogier, jean-christophe.burie}@univ-lr.fr, {dimos}@cvc.uab.es

bi Informatique
Image
Interaction
Univ. La Rochelle

CVC^R
Computer Vision Center

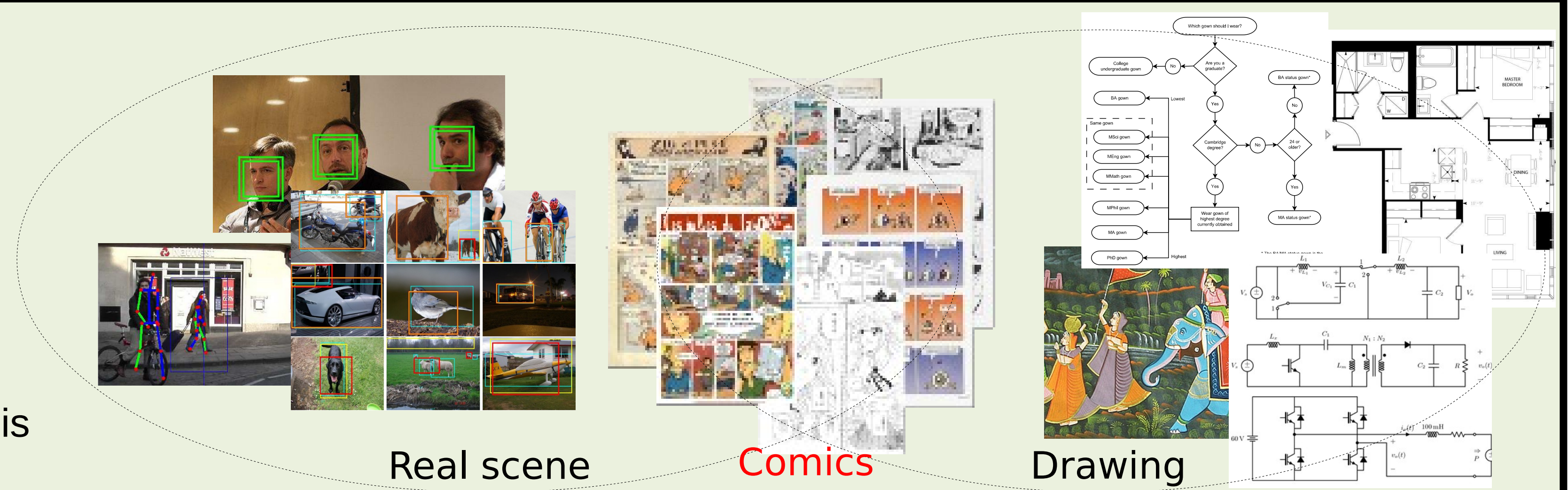
Presentation

Context

- Comics represent an important part of cultural heritage
- Digitization of thousands of comic books
- Content Based Drawing Retrieval

Applications

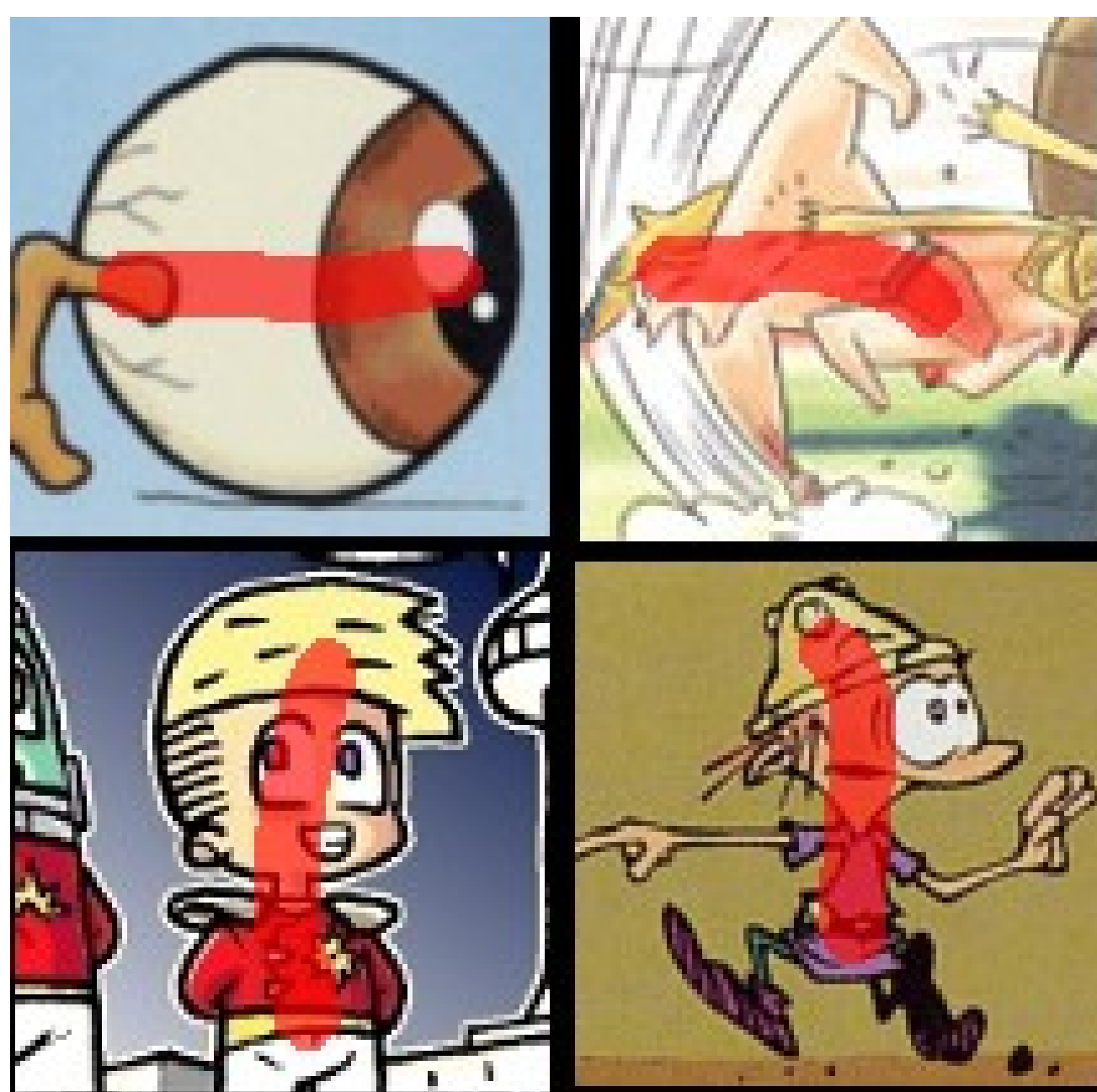
- Information retrieval: semantic query, full text search, story analysis
- Augmented reading experience: make comics characters speak



Contributions

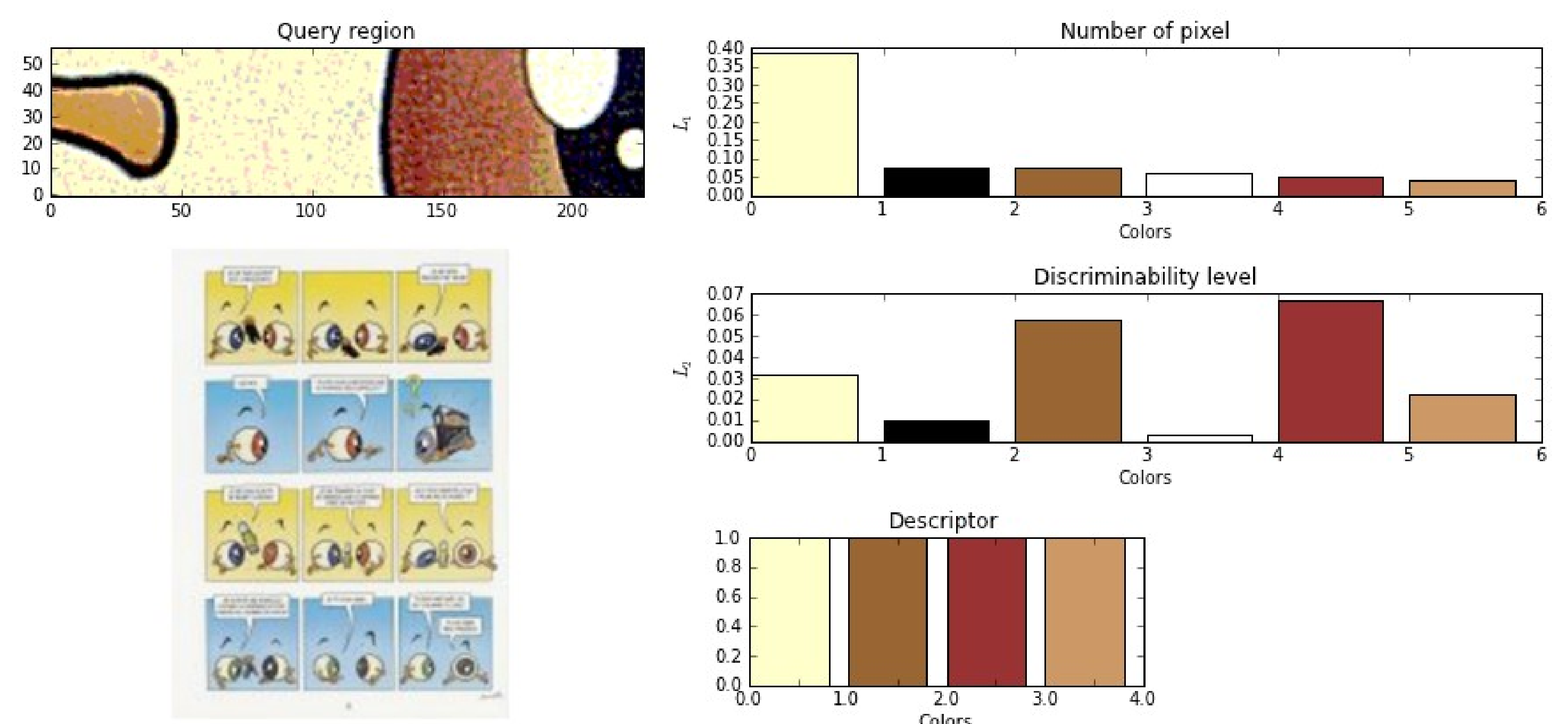
1. User query input

- Highlight of pixel using finger or pointing device
- Quick and user friendly
- One object at a time

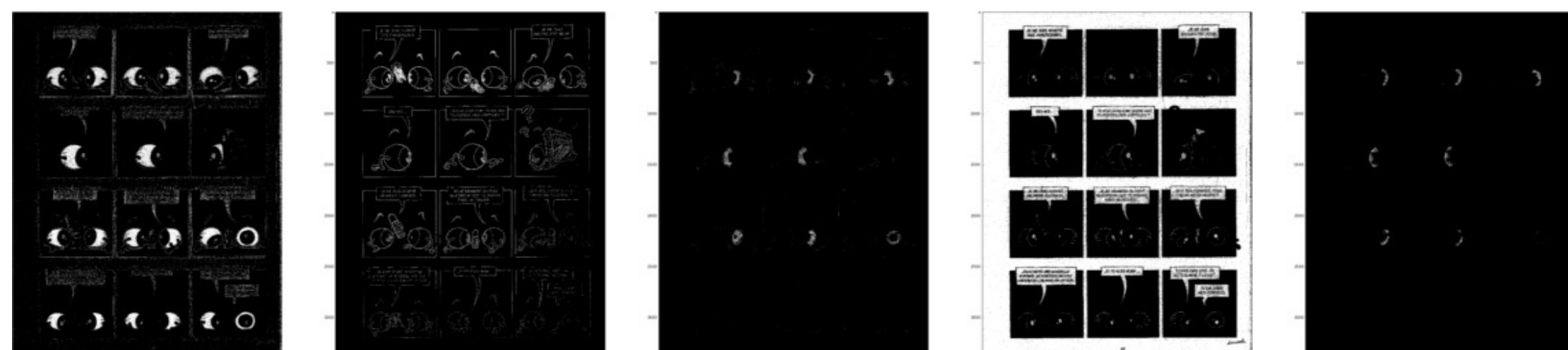


2. Query description

- Color reduction
- N most discriminant and dominant colors
- Descriptor (color palette)



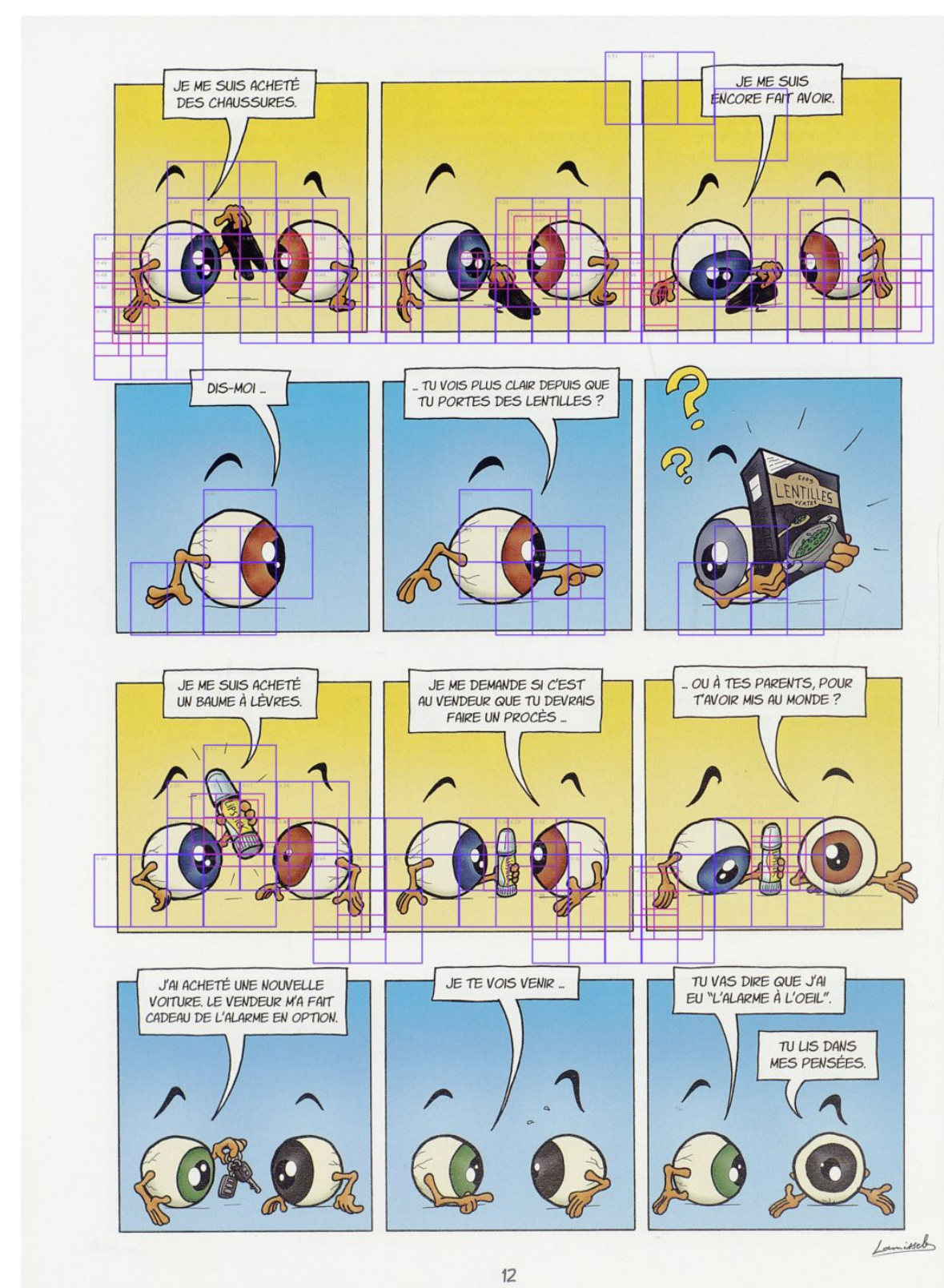
3. Complex object detection



Discriminant masks of the descriptor D

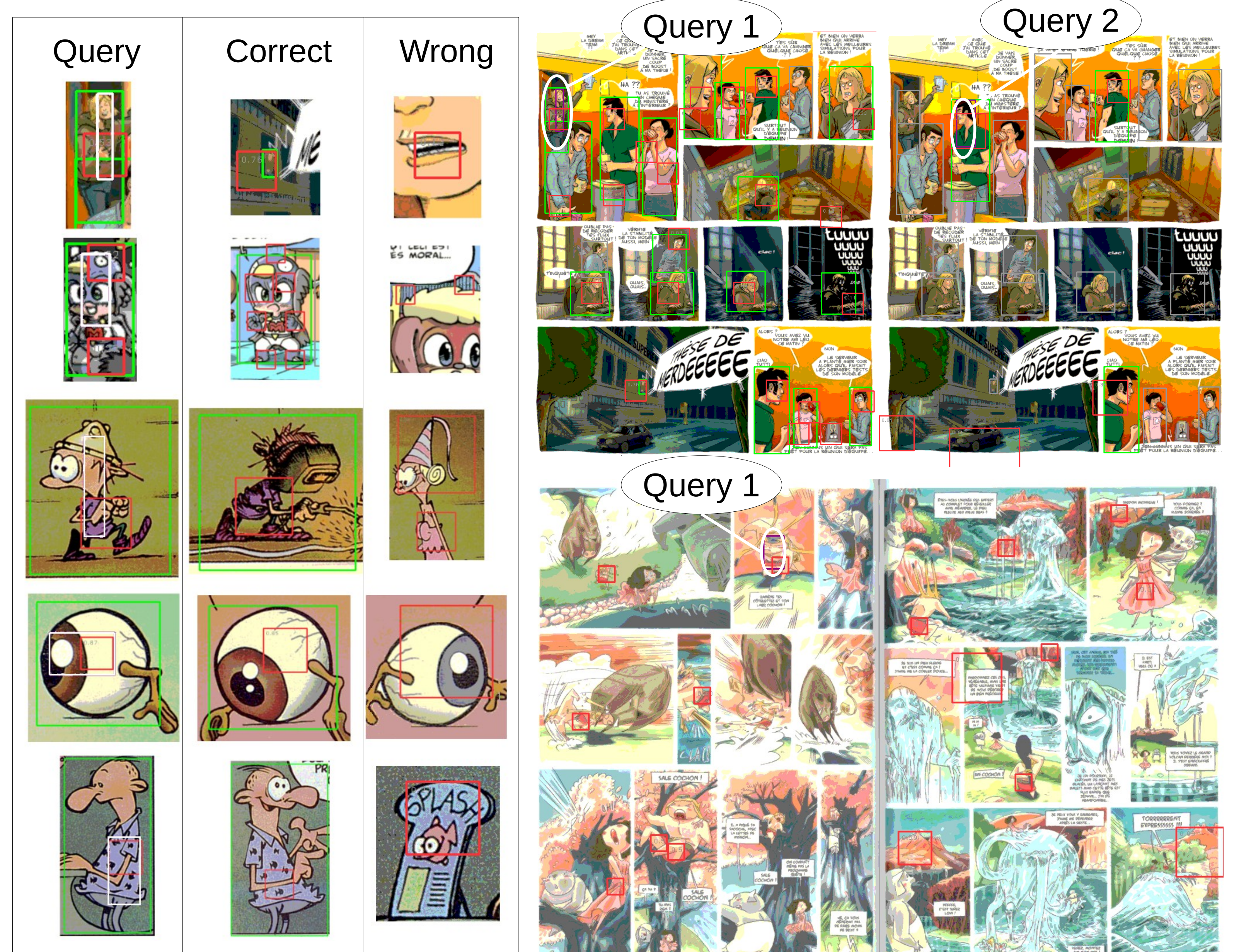
$$C(w_i) = \frac{|D|}{|D \cap w_i|}$$

Confidence C of a given sliding window w_i



Multi scale sliding window detection

4. Sample results



Color legend: white = query, red = detection, green = ground truth

Experiments

- Dataset <http://ebdtheque.univ-lr.fr>
- 22 different comics characters** that appear **352 times** in 34 pages
- Descriptor size = 6
- 3 window sizes = 2, 1 and 0.5 times the query height
- Confidence threshold $C = 100\%$
- 90.3% recall** and **46.7% precision** in average

Conclusion

Contribution

- Robust descriptor to scale, rotation, translation, deformation and occlusion
- Content Based Drawing Retrieval
- Limited to colored comics

Perspectives

- Speech balloon and speaker association
- Unsupervised comics understanding



Image credits: <http://ebdtheque.univ-lr.fr/>