

CRCV DISTINGUISHED GUEST PROFESSOR LECTURE

How can a computer search for images (of boats) it has never seen before?

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Thursday, August 1, 2013 · 2:00PM · HEC 101

ABSTRACT

When you type a question in Google search or any other main stream search engine, it goes through its records to find out what other people have found important about the topic. Classic picture search essentially works the same. It goes over what other people have said is in the image, and tries to come up with a window full of selected pictures. The approach is restricted as it selects only from pictures which have been annotated properly.

Some picture sets are accurately annotated: photo stock, art collections, medical images. The owners have taken the time and the expertise to annotate them. These images are suitable mostly for text-based picture search. There are many more reasons why pictures are not annotated. Some picture sets are too big, no one would label all pictures from surveillance cameras.

We aim to discover the content of images from the digital data of the picture alone. How on earth is a computer capable of converting digital camera recordings to a notion what is on the picture? How does it know how a boat looks like a boat, when there are so many different types and so many different views? And what is harder to recognize, a fork or a knife? A glass or a plate? We will show how a computer can *learn* to recognize objects from examples without knowing anything from physics of the object.

In the talk we will discuss these exiting methods for searching an arbitrary image for a general audience, what can and cannot be expected from image search engines in the near future.

BIOGRAPHY

Arnold W.M. Smeulders is director of COMMIT, the nation-wide public-private research program for ICT, at CWI. He is chairman of IPN, the national policy committee of the national science and member of the national top team for ICT. With Cees Snoek, he leads the ISIS-research group on image and video search engines at the University of Amsterdam for research in the theory and practice of visual search, sponsored nationally and internationally. The group has been given the top-rank in the last two visits of the international visitation on ICT in the Netherlands. He is co-owner of Euvision Technologies BV, a company spun off from the UvA.

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