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## FACEBOOK CHOOSES CAPACITÉS TO OPTIMIZE VIDEO ENCODING

#user experience #visual perception #testing #video encoding #algorithm #deep learning

Internet traffic from smartphone videos has increased dramatically with the development of social networks. However, their file format requires specific processing, which is a real challenge for everyone in the field – even the largest companies. Facebook chose experts in visual perception at Capacités and the LS2N laboratory in Nantes to adapt its automatic encoding process to this new video content.

### DEVELOPING A METHOD FOR ANALYZING AND AUTOMATICALLY CATEGORIZING VIDEOS

Until recently, all videos, including HD and lower-quality smartphone videos, have been encoded the same way. However, this technical approach is not adapted to the instantaneous nature or quality of videos created on social networks. Facebook entrusted experts from Capacités and the LS2N laboratory with adapting the encoding technique.

Our experts in deep learning and visual perception first analyzed a set of amateur videos and made a list of characteristics specific to that type of content.

To do so, they tested video bitrate and distortion level and analyzed different criteria including chrominance, texture and contrast. They used these results to compare and sort video content by category. With this new content-processing

method, videos are analyzed faster and categorized automatically according to pre-defined criteria. It also determines the best-adapted coding recipe for optimizing compression. This project represents a significant advance towards optimizing perception-based video compression – a world first in this field.

To successfully complete this project, the Capacités' experts benefited from support and technical equipment from the [LS2N laboratory](#) (Digital Sciences Laboratory), joint research unit of the University of Nantes, Centrale Nantes engineering school, Inria, IMT Atlantique and CNRS (The French National Centre for Scientific Research). ■

#### Expertises:

- Data science
- Artificial intelligence

#### CAPACITÉS

Created in 2005, Capacités is the private engineering and research valorisation subsidiary of the University of Nantes. It employs 90 employees, mainly engineers and PhDs, who work directly with scientists in the research laboratories.



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