Tutorial

Large-scale and larger-scale image search.

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The first part of this tutorial, dedicated to large-scale image retrieval, will first introduce the typical use-cases and the datasets used for evaluation of image search when considering an unsupervised framework. We will present different classes of techniques considering different trade-offs with respect to efficiency and search quality. Starting with the most costly but precise patch-based matching and spatial verification techniques, we will present the bag-of-words model, its matching interpretation and several improvements, including re-ranking techniques based on spatial verification and query expansion. Finally, the most scalable techniques based on aggregation/coding techniques and compressed-domain search will be detailed.

Hervé Jégou is a researcher employed by INRIA, in the TEXMEX team headed by Patrick Gros. He is a former student of the Ecole Normale Superieure de Cachan, holding a M.S. (2002) and PhD (2005) from University of Rennes I. During his PhD, he worked on error-resilient compression and joint source channel coding, supervised by Christine Guillemot. After that, he turned out to Computer Vision and Pattern Recognition. He joined the LEAR group (INRIA Grenoble) as a permanent researcher in 2006, and moved to INRIA Rennes in 2009. His work is mainly focused on large scale image/video/audio retrieval, and multi-dimensional indexing techniques. He has designed methods that scale from millions to billions of vectors/images while being ressource efficient (one machine, relatively low memory usage)

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