YONG YUAN

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EDUCATION

University of Chinese Academy of Sciences *Aug. 2013 - Jun. 2016*
M.S. in Signal & Information Processing (Research in image retrieval)
Xidian University *Aug. 2009- Jun. 2013*
B.S. in Computer Engineering

EXPERIENCE

Center for OPTical IMagery Analysis and Learning (OPTIMAL) *Aug. 2013 - Present*
Graduate Researcher *XI'AN, CN*

- Designed content based image retrieval algorithm to improve image search accuracy and efficiency, and used Matlab or C++ to build image retrieval prototype with openMP.
- Mastered bag of virtual words (BoVW) model, Vector of locally aggregated descriptors (VLAD), fisher vector (FV) for image representation, and got familar with Convolutional neural network (CNN), the performance evaluation of image retrieval and other machine learning algorithms.
- Proposed two new hashing based methods for approximate nearest neighbor search. One is based on sparse reconstruction to learn hashing functions and has been published. Another based on matrix factorization has been fully written and will be submitted.
- Developed a Matlab toolkit box for someone interested in designing hashing method. The toolkit box contains several popular hashing methods and various evaluations to validate performance is included.
- Participated in contest of clothes and shoes (150,000 images respectly) images retrieval, and accumulated a lot of experience in duplicate image search and object retrieval.

PROJECTS

DuplicateSearch, *Graduate Researcher* *Mar. 2015 - Present*
DupSearch is a image retrieval prototype for duplicate search or object retrieval. It's a project based on BoVW or FV model and I developed it indepently.

- Extracted SIFT feature descriptor to overcome brigthness variance, rotation variance, translation variance and scale variance.
- Quantized each extracted local feature into one of visual words, and then represent each image with a global feature by histogram of the visual words.
- Built multithreads by openMP to speed up feature extraction and the process of clustering.
- Improved the mean average precision (mAP) by reranking algorithm. On Oxford Building public database the mAP can reach 84.89% after reranking with 500,000 virtual words.
- Tested the prototype on two large datasets including 150,000 clothes images and 130,000+ logo images, and optimized the search time and accuracy.

PicSearch Web Application, *Graduate Researcher* *Jan. 2015 - Apr. 2015*
PicSearch is an online image retrieval demo which uses the vgg CNN model. I developed it for fun and learning the deep learning architect.

- Completed feature extraction offline based on the model pre-trained on imageNet with Matlab.
- Made dimensionality reduction by PCA to reduce memory usage (the memory is limited to 1G) and speed up the query response time.
- Deployed the prototype with the lightweight web development framework CherryPy on CentOS. The front-end interface was based on Boostrap framework.
- Optimized the code to make sure it respond to the user's query (milliseconds) in a timely manner. The image dataset I used is 29,780 images Caltech-256 public dataset and the online demo address of PicSearch is: search.yongyuan.name. The demo has no upload function yet.

Hashing Baseline for Image Retrieval, *Graduate Researcher* *Jan. 2014 - Apr. 2015*

I do the image retrieval research in early 2013. My mission is to design efficient hashing algorithm to map the semantic similar images to the similar codes. There are two main advantages using hashing method for image retrieval, i.e. storage and computation efficience. To let more researchers focus on design hashing algorithm, I have built a hashing baseline, hoping this project can do some help for some researchers.

· test

TECHNICAL STRENGTHS

Computer Languages	Python, Matlab, C ++ / C, HTML, CSS
Machine Learning	CBIR technology proficient, proficient SVM, BoF, ANN, hash and other common ma
Tools	Git, Chrome, OpenCV, Python web development framework Django
Operating Systems	OS X, Linux

AWARDS

Best Paper Runner-up Award(2014)

National Scholarship(2012)

The First Prize Scholarship(2010)

National Scholarship for Encouragement(2009)