



Universiteit
Leiden
The Netherlands

Exploring images with deep learning for classification, retrieval and synthesis

Liu, Y.

Citation

Liu, Y. (2018, October 24). *Exploring images with deep learning for classification, retrieval and synthesis*. *ASCI dissertation series*. Retrieved from <https://hdl.handle.net/1887/66480>

Version: Not Applicable (or Unknown)

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/66480>

Note: To cite this publication please use the final published version (if applicable).

Cover Page



Universiteit Leiden



The handle <http://hdl.handle.net/1887/66480> holds various files of this Leiden University dissertation.

Author: Liu, Y.

Title: Exploring images with deep learning for classification, retrieval and synthesis

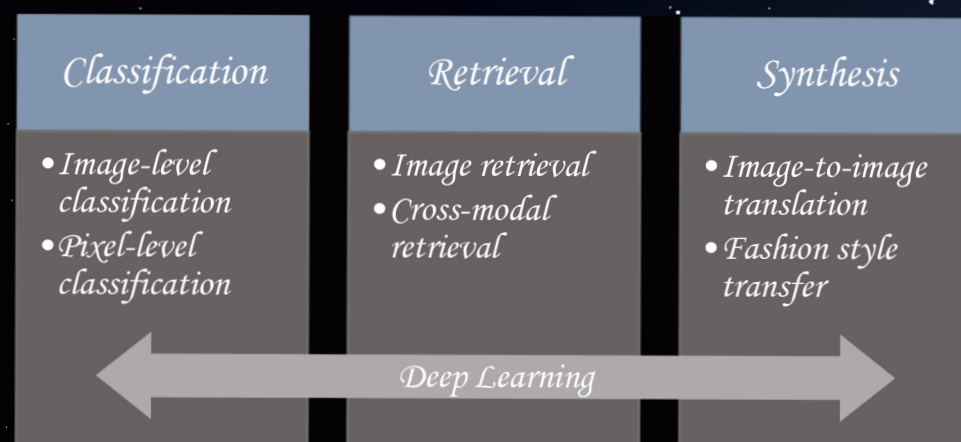
Issue Date: 2018-10-24

In 2018, the number of mobile phone users will reach about 4.9 billion. Assuming an average of 5 photos taken per day using the built-in cameras would result in about 9 trillion photos annually. Thus, it becomes challenging to mine semantic information from such a huge amount of visual data. To solve this challenge, deep learning, an important sub-field in machine learning, has achieved impressive developments in recent years. Inspired by its success, this thesis aims to develop new approaches in deep learning to explore and analyze image data from three research themes: classification, retrieval and synthesis.

(1) Classification aims to correctly predict semantic labels in an image, and acts as a fundamental task in computer vision. Typically, it can be divided to image-level and pixel-level classification.

(2) Retrieval is to search for image candidates from the database that are similar to the query sample. This work studies not only image retrieval, but also cross-modal retrieval between images and texts.

(3) Synthesis is able to generate new image samples that never existed in the image database. We mainly focus on two synthesis applications: image-to-image translation and fashion style transfer.



“Intelligence is the ability to adapt to change”.

-- Stephen Hawking

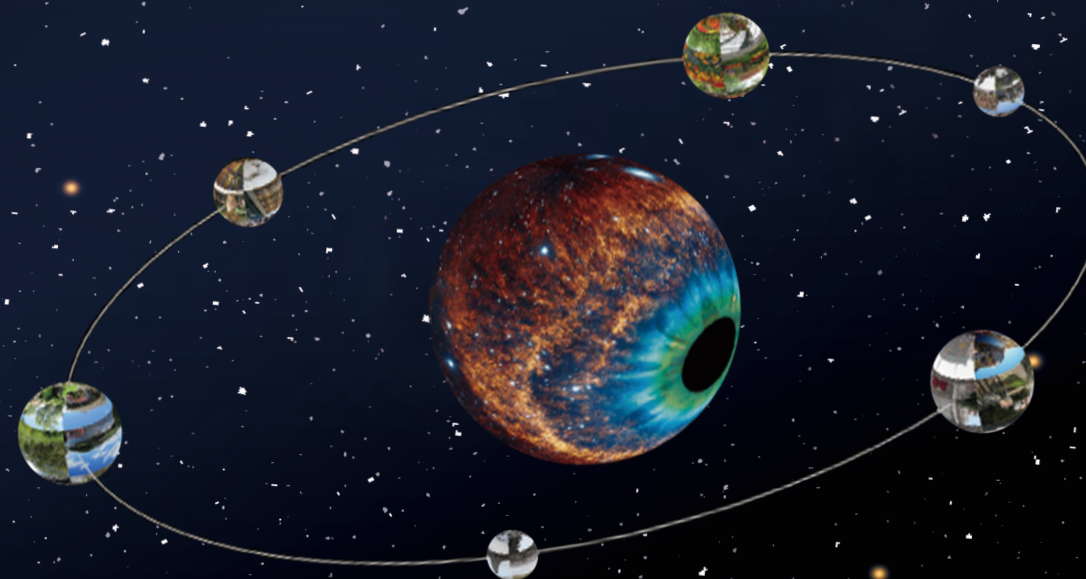


Exploring Images with Deep Learning for Classification, Retrieval and Synthesis

Yu Liu

Exploring Images with Deep Learning

Classification, Retrieval & Synthesis



Yu Liu

刘宇