

Look, Imagine and Match: Improving Textual-Visual Cross-Modal Retrieval with **Generative Models**



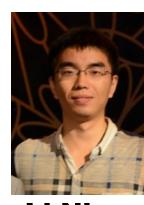
Jiuxiang Gu



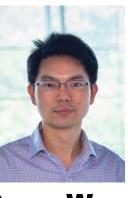
Jianfei Cai



Shafiq Joty



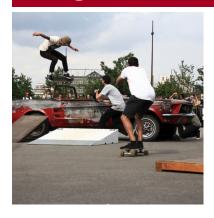
Li Niu



Gang Wang

Goal

Image-to-Text Retrieval



A young man doing a skateboard trick while others watch

A man doing a skate trick during a competition event with a audience

Guys on a course made for skate boarding

A group of people doing skateboarding tricks on a car

A boy riding on his skateboard at a skate park while other guys watch

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Text-to-Image Retrieval

Bright room with a couch and various different dressers





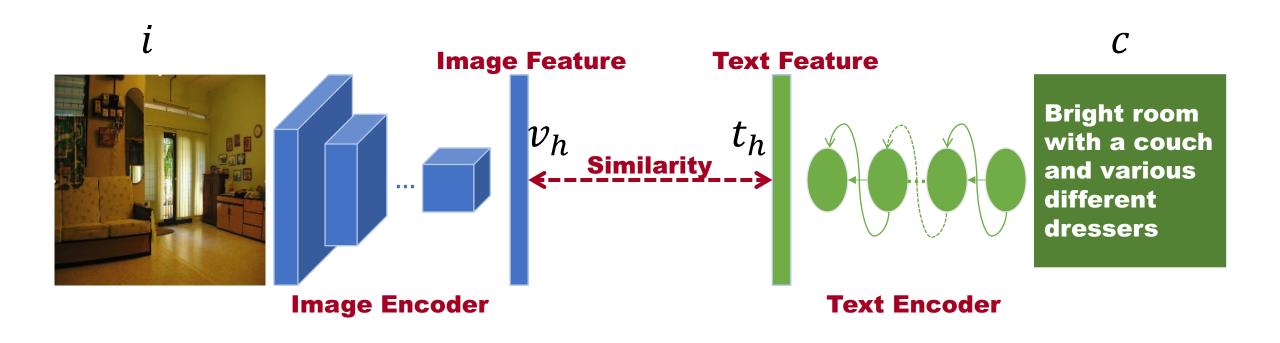




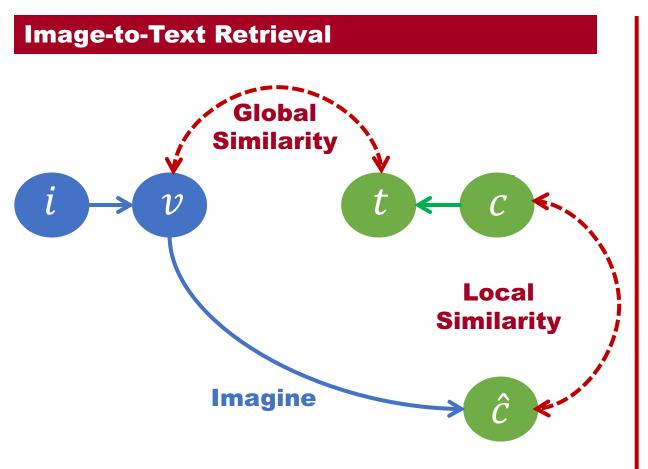


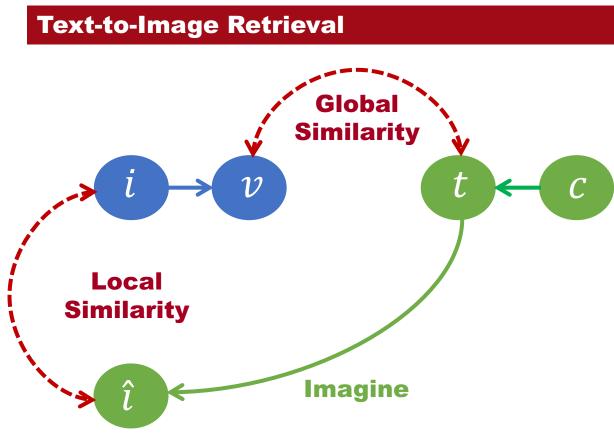
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Classical Pipeline

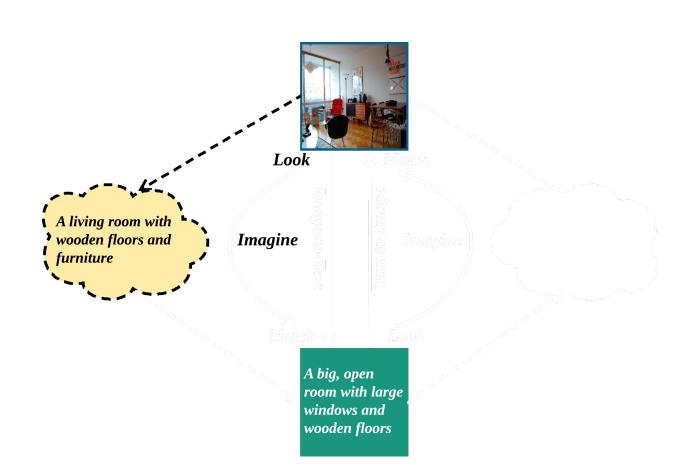


Motivation: Look → Imagine → Match

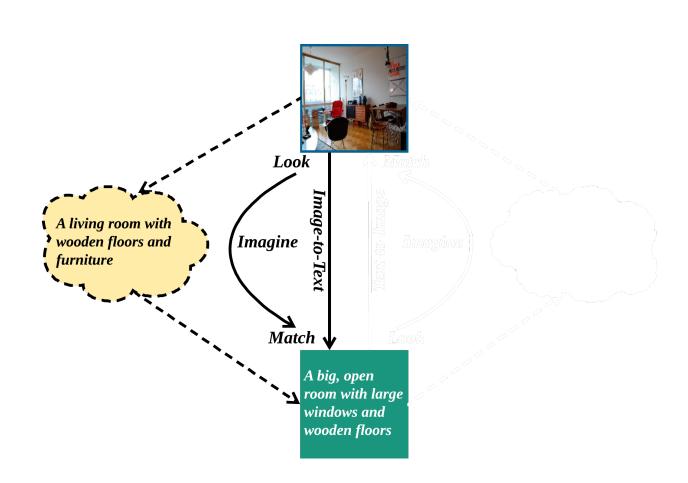




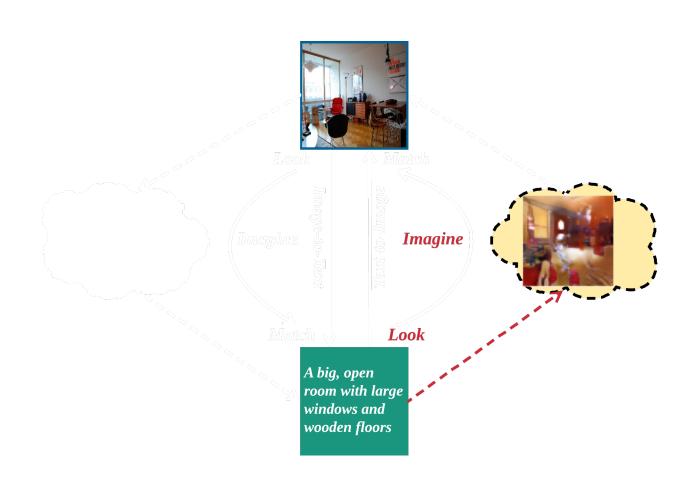
Look → Imagine



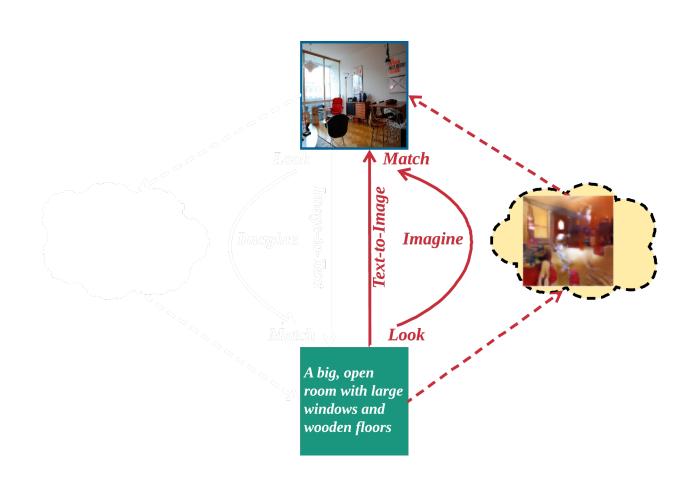
Match



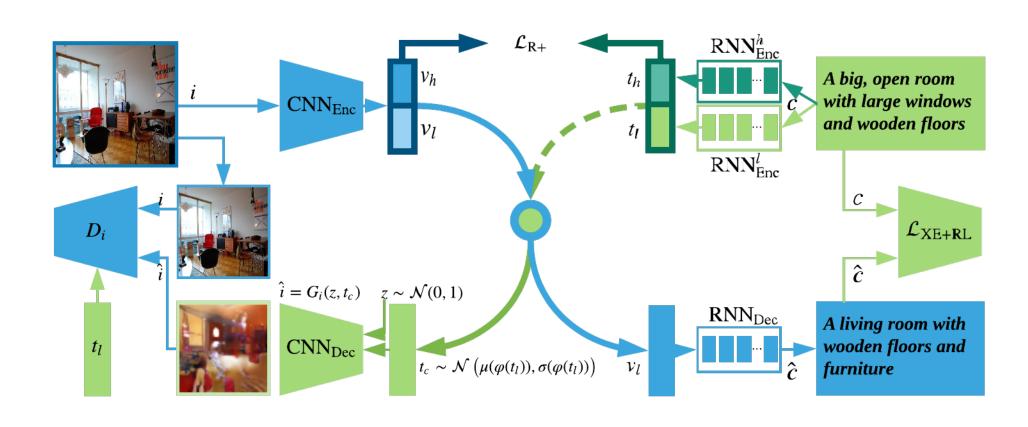
Look → Imagine



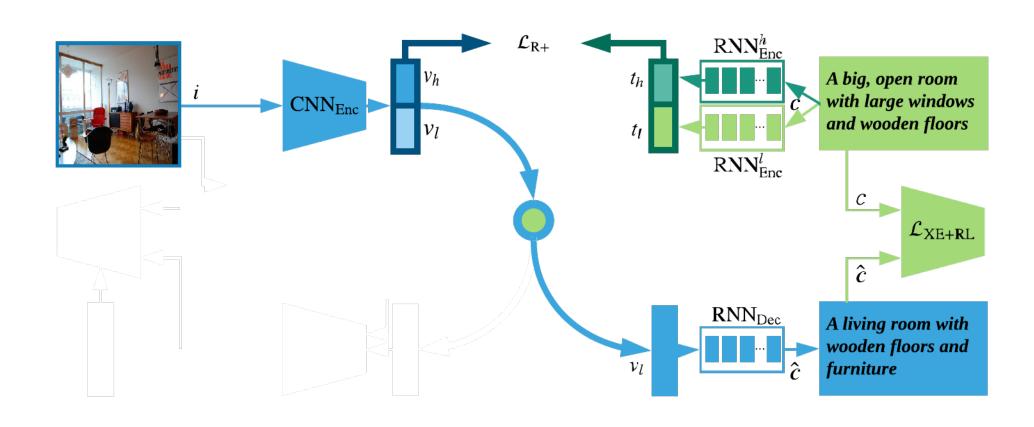
Match



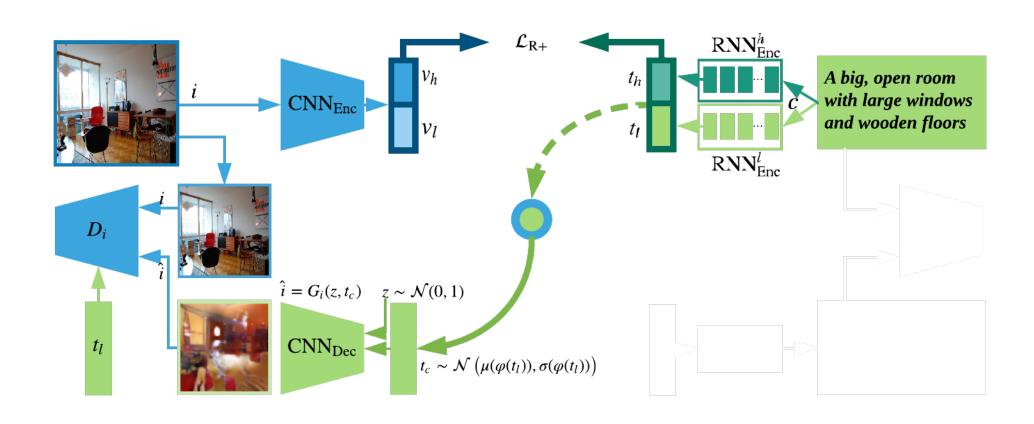
Proposed Approach



Cross-Modal Retrieval with Generative Learning



Cross-Modal Retrieval with Generative Learning

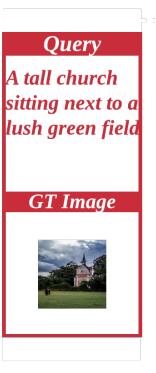


Results

Image-to-Text Retrieval

Query GT Caption - sheep graze in a lushly green mountain meadow - a group of sheep grazing in a grassy valley

Text-to-Image Retrieval



Results (Classical Pipeline)

Image-to-Text Retrieval Text-to-Image Retrieval Match Look Match Look Query Query A herd of ->sheep A tall church standing on sitting next to a lush green field top of a hill GT Image **GT** Caption - sheep graze in a lushly green mountain meadow - a group of sheep grazing in a grassy valley

Results (Ours)

Image-to-Text Retrieval Text-to-Image Retrieval Query Query A tall church sitting next to a lush green field A herd of **GT** Caption Sheep graze GT Image sheep grazing - sheep graze in a in a lushly lushly green on a lush green mountain meadow MARARA-HI-- a group of sheep green field mountain grazing in a grassy meadow valley Match Look Match Look Imaaine <u>Imagine</u>









At the Poster:

- Additional details
- Quantitative results
- Discussion