



#InstaHash: Describing Images in a Human Fashion



Josiah Coad, Duc Hoang,
Samantha Ray, Mahalakshmi Sridharan

INTRODUCTION

PROBLEM:

Machine captioning lacks the ability to describe images within context.

MOTIVATION:

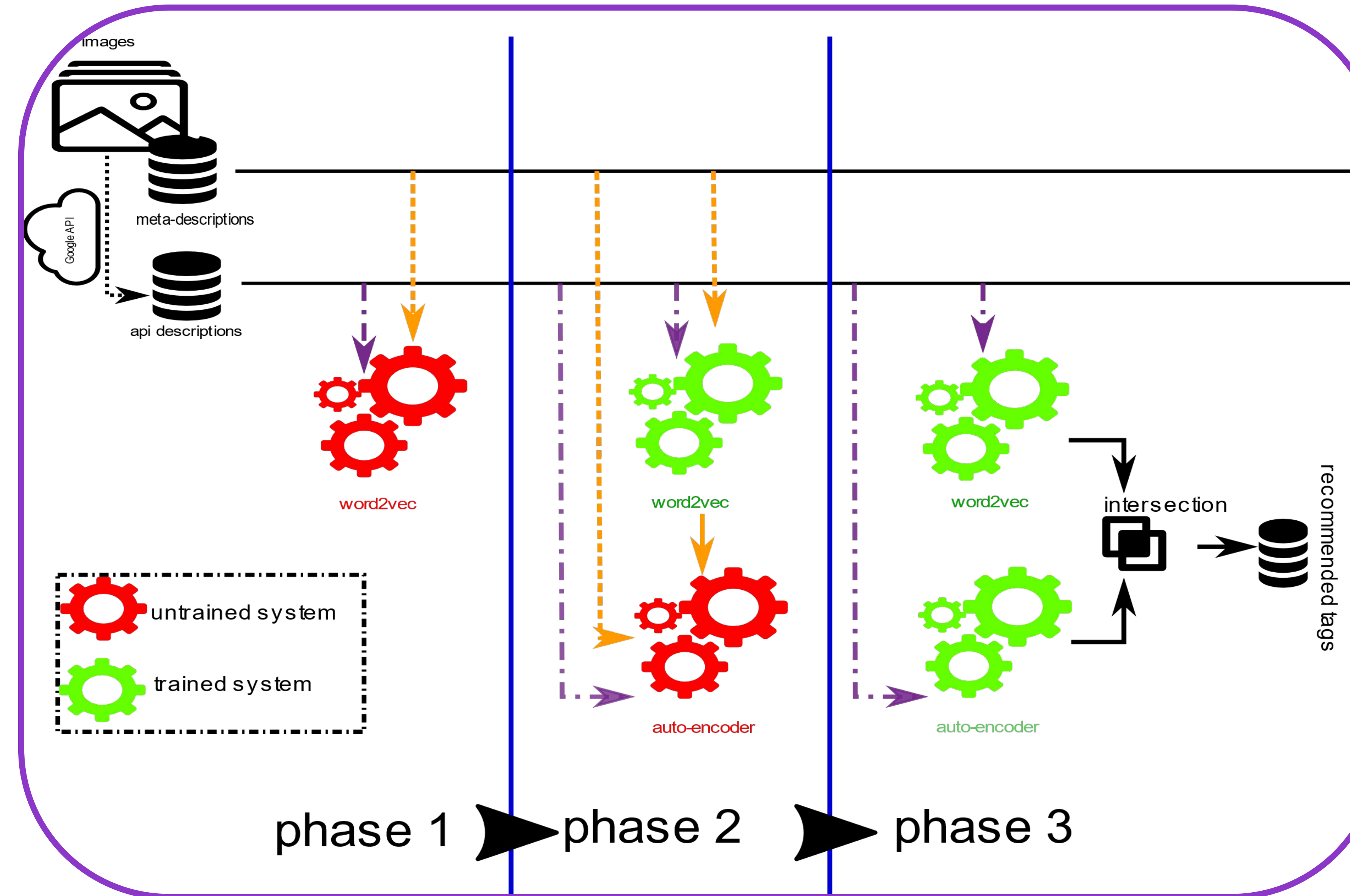
Develop a hashtag recommender system that incorporates both:

- Content - What's in the image?
- Context - What does it mean?

GOAL:

Improve machine description of images by learning how humans describe their Instagram photos in the **InstaPic-1.1M** and **HARRISON** datasets.

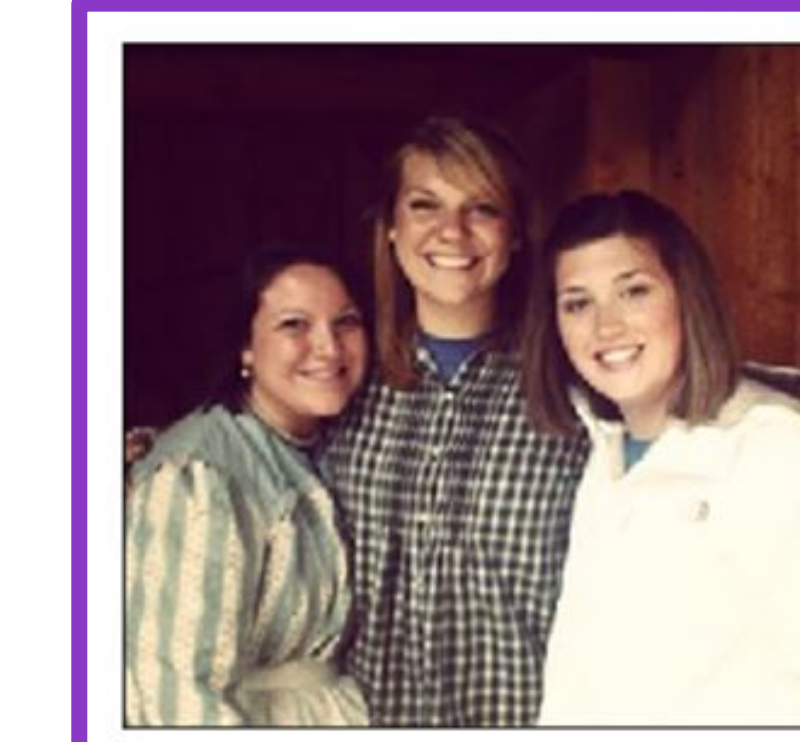
RECOMMENDER SYSTEM



RESULTS



Ground Truth: #sky #boat #sea #cloud
Word2Vec: #horizon #calm #sunrise
... #skyporn #reflection #cloud
AutoRec: #horizon #calm #sunrise
#sunset #cloud



Ground Truth: #colorado
Word2Vec: #people #bestfriends
#friendship #funtimes #memories ...
#throwbackthursday
AutoRec: #people #bestfriends
#friendship #fun #family



Ground Truth: #shoplocal #vsco
Word2Vec: #lovemyjob #picture ...
#studio #designlifekids
AutoRec: #black #furniture #tshirt
#table

APPROACH

Word2Vec

- Models the dependencies of natural language by learning the relationships between words based on which ones appear together or in similar contexts.
- Instahash uses Gensim's Word2Vec model trained on the unique vocabulary from the Instagram datasets and image descriptions from Google's Vision API.

AutoRec

- A collaborative filtering system with an autoencoder architecture.
- Learns profiles of images' context and content by representing the presence or absence of a hashtag in the image's description as a positive or negative rating, respectively.

Recommendation

- Intersects the two ranked outputs from Word2Vec and AutoRec. The recommended hashtags consist of the tags that both models endorse.
- If the two models generate recommendations that are disjoint, the recommender returns the top 5 results.

