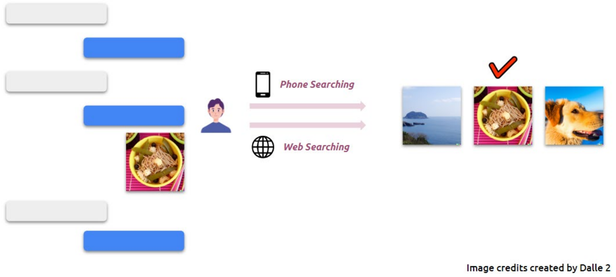
DialogCC: An Automated Pipeline for Creating High-Quality Multi-modal Dialogue Datasets

Young-Jun Lee[1], Byungsoo Ko[2], Han-Gyu Kim[3], Jonghwan Hyeon[1], Ho-Jin Choi[1]
[1]School of Computing, KAIST [2]NAVER Vision [3]NAVER Cloud AI Works

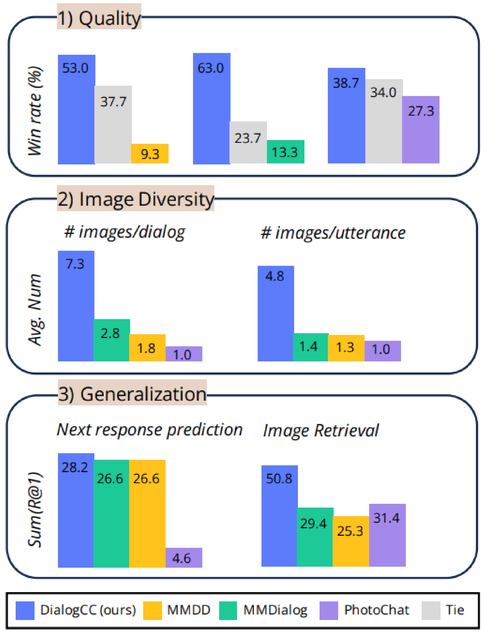
Background: Image-Sharing Behavior

People often share a variety of images during interactions via instant messaging tools



Motivation

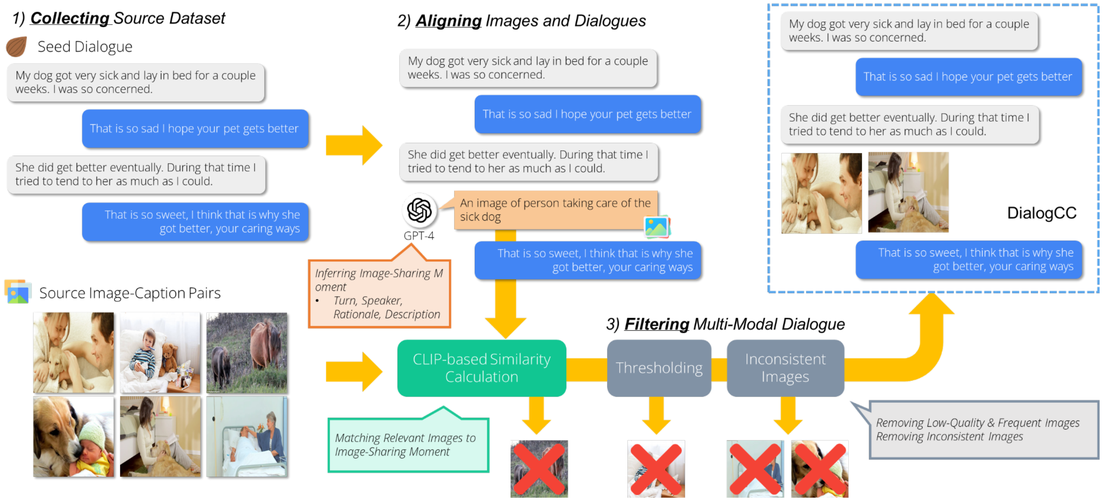
Existing multi-modal dialogue datasets have three significant limitations: Quality, Image Diversity, Generalization



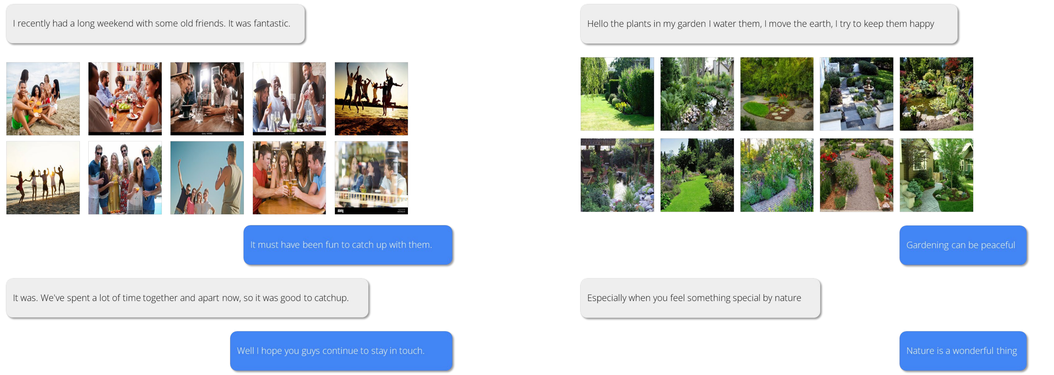
Overview of Proposed Automatic Pipeline

We propose a fully automatic framework for creating a multi-modal dialogue dataset that involves three main steps: collecting, aligning, and filtering.

- Collecting: We collect source datasets (e.g., PersonaChat, CC3M)
- Aligning: We ask GPT-4 to infer all possible image-sharing moments and leverage CLIP to increase the aligned image relevancy
- Filtering: We eliminate inappropriate images based on CLIP similarity



DialogCC: High-Quality and Diverse Multi-Modal Dialogue Dataset



Analysis of DialogCC

To assess the quality of DialogCC, we conduct the human evaluations based on five criteria:

- Image-Sharing Turn Relevance: 3.68
- Image-Sharing Speaker Relevance: 95.1%
- Image-Sharing Rationale Relevance: 3.41
- Aligned Image Relevance: 3.30
- Image Consistency: 3.57

* Inter-rater agreement (Krippendorff's alpha): 0.39 (fair agreement)

To assess the quality gap between DialogCC and real-world scenarios, we conduct head-to-head human evaluations by comparing DialogCC with existing datasets.