Week 5 Presentation

Slow-Fast Weights for Long-Term Video Understanding
-Rajat Modi, Dr. Rawat

David Gardner, June 26 2025

Last Week

1. **Met Dr. Rawat**/Rajat to choose experimental setup, finalize problem statement

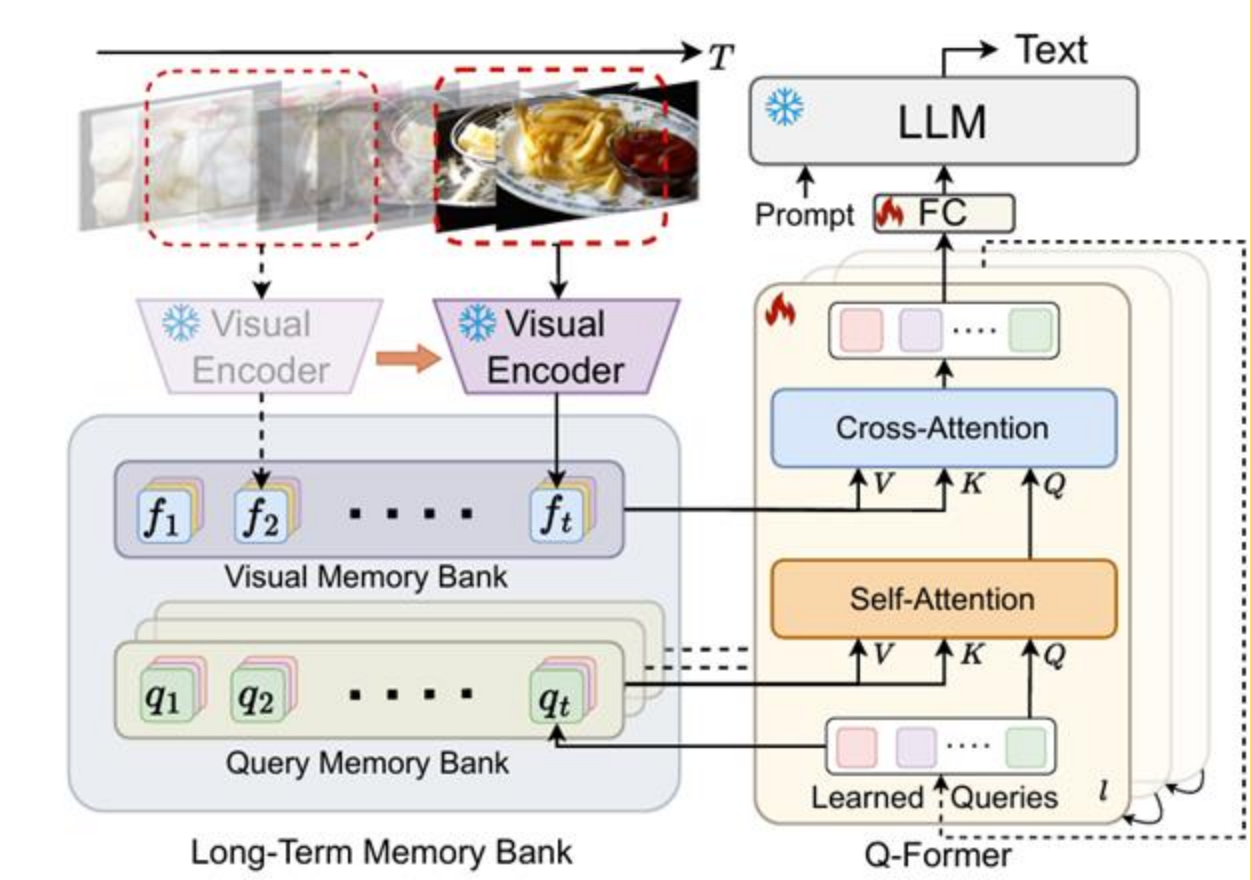
CVPR 2024

MA-LMM: Memory-Augmented Large Multimodal Model for Long-Term Video Understanding

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- we use this paper as a baseline
- tasks are the same as this paper

MA LMM Architecture



online, autoregressive, one frame at a time

Reproduced Results

Breakfast (long term video understanding)

			Breakfast
Metric			
Paper Results		top 1	93
My Reproductior		top 1	92.96

Captioning

MSVD in progress, MSRVTT end of day

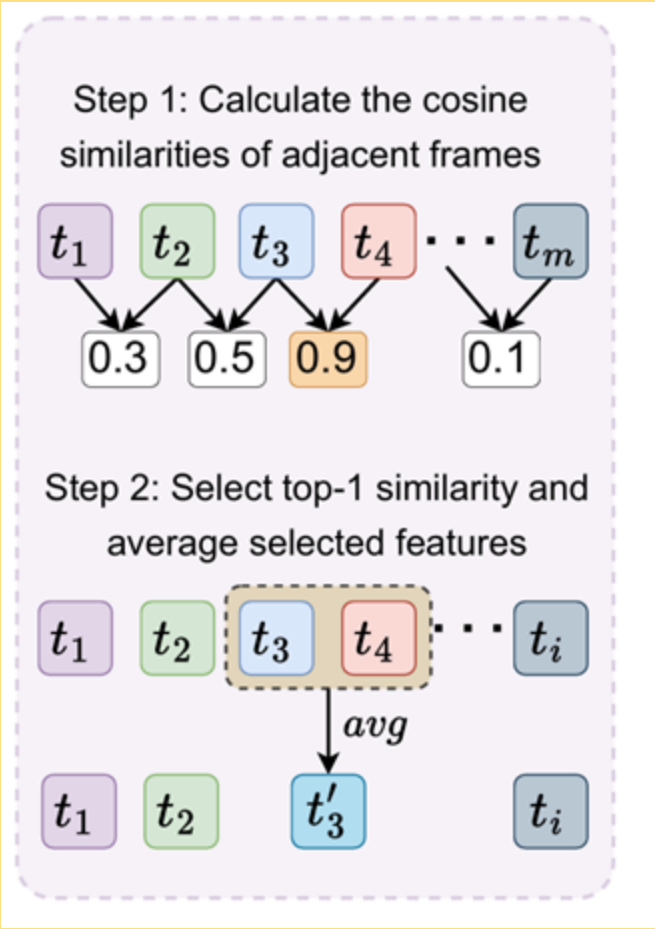
```
Evaluation  [ 50/269]  eta: 1:21:35
```

Video Question Answering

MSRVTT, MSVD tomorrow

Memory Compression (for both VMB and QMB)

1. when new f_t frame arrives to VMB…
2. calculate cosine similarity between f_t and memory bank features
3. average f_t and most similar memory bank feature f_i, replace f_i
4. averaging operation is like pooling, **info is lost**
5. instead, we want to **learn** the entire memory bank



Next Steps

- Working on architecture for memory bank
- Meeting Dr. Rawat at 4 pm today

2. Video Question Answering: **MSRVTT-QA**

video 9890, test set




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    "dataset": "msrvtt",
    "video": "video9890",
    "frame_length": 272
},
```


Question	Answer	Answer Ty
what do a runway with wildly color clothing and have?	literature	what
what is person in green shirt talking about in the shop?	something	what
what is person in green shirt talking about something in?	shop	what
who describes fabric and textiles that he has designed?	man	who
what pictures being panned with a young man in a decorative hat inside out?	video	what
who is sitting in a room with a hat on?	boy	who
what is a person with green hair and oriental dress an young man in strange clothing is sitting and speaking?	show	what
who is talking with different cloths are placed behind him in the store?	man	who
who is looking perfect?	woman	who
who is talking about fashion and garments?	guy	who
who speaks about designing a large version of a design being a total self expression?	designer	who
what does a man describe that he has designed?	fabric	what
when is woman walking?	stage	when
who is walking on the stage?	woman	who
what is a person with green hair and oriental dress is show an young man in strange clothing doing?	sit	what
what show where model shows some unique dresses and one person wearing a cap talking about something?	fashion	what