

Experiments

Experimental Results

Table 1: Comparison results on the query-focused video summarization dataset in terms of Precision, Recall and F1-score.

| | SeqDPP | | | SH-DPP | | | QC-DPP | | | TPAN | | | CHAN | | |
|------|--------|-------|-------|--------|-------|-------|--------|-------|-------|-------|-------|--------------|-------|-------|--------------|
| | Pre | Rec | F1 | Pre | Rec | F1 | Pre | Rec | F1 | Pre | Rec | F1 | Pre | Rec | F1 |
| Vid1 | 53.43 | 29.81 | 36.59 | 50.56 | 29.64 | 35.67 | 49.86 | 53.38 | 48.68 | 49.66 | 50.91 | 48.74 | 54.73 | 46.57 | 49.14 |
| Vid2 | 44.05 | 46.65 | 43.67 | 42.13 | 46.81 | 42.72 | 33.71 | 62.09 | 41.66 | 43.02 | 48.73 | 45.30 | 45.92 | 50.26 | 46.53 |
| Vid3 | 49.25 | 17.44 | 25.26 | 51.92 | 29.24 | 36.51 | 55.16 | 62.40 | 56.47 | 58.73 | 56.49 | 56.51 | 59.75 | 64.53 | 58.65 |
| Vid4 | 11.14 | 63.49 | 18.15 | 11.51 | 62.88 | 18.62 | 21.39 | 63.12 | 29.96 | 36.70 | 35.96 | 33.64 | 25.23 | 51.16 | 33.42 |
| Avg. | 39.47 | 39.35 | 30.92 | 39.03 | 42.14 | 33.38 | 40.03 | 60.25 | 44.19 | 47.03 | 48.02 | 46.05 | 46.40 | 53.13 | 46.94 |

- CHAN outperforms the state-of-the-art approach (TPAN) by 1.9%
 - Specifically video 2 & 3, CHAN can have a better performance than TPAN (2.64%, 3.6%)
- The improvements of performance identify the effectiveness of our approaches to learn the relevance between the video shots and user's query.
 - The average running time of each video 134.4ms, shorter than TPAN 1.614s by 91.6%.

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Ablation Study

- F1-score of CHAN without local self-attention module is reduced by 7.84%
- The performance without query-aware global attention module decreases by 18.8%
- Local self-attention & query-aware global attention module can capture visual information inside a video segment and between segments
 - Helpful to improve performance

Table 2: Ablation analysis on query-conditioned video summarization in terms of Precision , Recall and F1-score.

| Model | Pre | Rec | F1 |
|---------------------|-------|-------|-------|
| CHAN w/o Local Att | 42.72 | 49.04 | 43.26 |
| CHAN w/o Global Att | 37.62 | 43.17 | 38.09 |
| CHAN | 46.40 | 53.13 | 46.94 |