

Question Answering about Images using Visual Semantic Embeddings

Table 1. COCO-QA Question Type Break-Down

| CATEGORY | TRAIN | % | TEST | % |
|----------|-------|---------|-------|---------|
| OBJECT | 58352 | 69.96% | 27497 | 71.13% |
| NUMBER | 6551 | 7.85% | 2575 | 6.66% |
| COLOR | 13337 | 15.99% | 6047 | 15.64% |
| LOCATION | 5164 | 6.19% | 2541 | 6.57% |
| TOTAL | 83404 | 100.00% | 38660 | 100.00% |

Table 2. DAQUAR Results

| | ACC. | WUPS 0.9 |
|-------------|---------------|---------------|
| 2-CNN-LSTM | 0.3578 | 0.3602 |
| CNN-LSTM | 0.3441 | 0.3464 |
| BLIND-LSTM | 0.3273 | 0.3294 |
| BLIND-BOW | 0.3267 | 0.3289 |
| GUESS | 0.1824 | 0.1671 |
| MULTI-WORLD | 0.1273 | 0.1810 |
| HUMAN | 0.6027 | 0.6104 |

Table 3. COCO-QA Results

| | ACC. | WUPS 0.9 |
|------------|---------------|---------------|
| 2-CNN-LSTM | 0.5161 | 0.5244 |
| CNN-LSTM | 0.5073 | 0.5153 |
| IMG-BOW | 0.4490 | 0.4593 |
| BLIND-LSTM | 0.3516 | 0.3592 |
| BLIND-BOW | 0.3262 | 0.3337 |
| GUESS | 0.0665 | 0.0851 |

Table 4. COCO-QA Accuracy Per Category Break-Down

| | OBJECT | NUMBER | COLOR | LOCATION |
|------------|---------------|---------------|---------------|---------------|
| 2-CNN-LSTM | 0.5386 | 0.4534 | 0.4786 | 0.4258 |
| CNN-LSTM | 0.5321 | 0.4678 | 0.4439 | 0.4294 |
| CNN-BOW | 0.4718 | 0.3773 | 0.4130 | 0.3609 |
| BLIND-LSTM | 0.3459 | 0.4383 | 0.3334 | 0.3680 |
| BLIND-BOW | 0.3201 | 0.3339 | 0.3434 | 0.3436 |
| GUESS | 0.0211 | 0.3584 | 0.1387 | 0.0893 |