Homework 2

- We will provide some research topics and corresponding paper lists, each student need to choose one paper and submit a reading report no more than 3 pages.
- You can choose a paper in the lists provided, or any other topic that you are interested in (need to submit the detailed information of the paper you choose, *e.g.*, BibTex format).
- You should briefly explain the problem the paper is working on, their major contributions and the proposed solutions.
- Your own understanding of the contributions and the unsolved problems of the paper are welcomed in the report.

Topic 1：Action Recognition

1. Making the Invisible Visible: Action Recognition Through Walls and Occlusions
2. STM: Spatio-Temporal and Motion Encoding for Action Recognition
3. Action Recognition With Spatial-Temporal Discriminative Filter Banks
4. EPIC-Fusion: Audio-Visual Temporal Binding for Egocentric Action Recognition
5. Grouped Spatial-Temporal Aggregation for Efficient Action Recognition
6. Generative Multi-View Human Action Recognition
7. SCSampler: Sampling Salient Clips From Video for Efficient Action Recognition
8. Bayesian Graph Convolution LSTM for Skeleton Based Action Recognition
9. Hallucinating IDT Descriptors and I3D Optical Flow Features for Action Recognition With CNNs
10. DMC-Net: Generating Discriminative Motion Cues for Fast Compressed Video Action Recognition
11. Actional-Structural Graph Convolutional Networks for Skeleton-Based Action Recognition
12. Bayesian Hierarchical Dynamic Model for Human Action Recognition
13. Collaborative Spatiotemporal Feature Learning for Video Action Recognition
14. Skeleton-Based Action Recognition With Directed Graph Neural Networks
15. Representation Flow for Action Recognition
16. LSTA: Long Short-Term Attention for Egocentric Action Recognition
17. Two-Stream Adaptive Graph Convolutional Networks for Skeleton-Based Action Recognition
18. Large-Scale Weakly-Supervised Pre-Training for Video Action Recognition
19. …

Topic 2：Object Detection

1. Libra R-CNN: Towards Balanced Learning for Object Detection
2. Feature Selective Anchor-Free Module for Single-Shot Object Detection
3. Bottom-Up Object Detection by Grouping Extreme and Center Points
4. Unsupervised Moving Object Detection via Contextual Information Separation
5. GS3D: An Efficient 3D Object Detection Framework for Autonomous Driving
6. Deep Fitting Degree Scoring Network for Monocular 3D Object Detection
7. Salient Object Detection With Pyramid Attention and Salient Edges
8. Attentive Feedback Network for Boundary-Aware Salient Object Detection
9. C-MIL: Continuation Multiple Instance Learning for Weakly Supervised Object Detection
10. Towards Adversarially Robust Object Detection
11. A Robust Learning Approach to Domain Adaptive Object Detection
12. A Delay Metric for Video Object Detection: What Average Precision Fails to Tell
13. Delving Into Robust Object Detection From Unmanned Aerial Vehicles: A Deep Nuisance Disentanglement Approach
14. Employing Deep Part-Object Relationships for Salient Object Detection
15. Transferable Semi-Supervised 3D Object Detection From RGB-D Data
16. Learning Rich Features at High-Speed for Single-Shot Object Detection
17. Disentangling Monocular 3D Object Detection
18. Structured Modeling of Joint Deep Feature and Prediction Refinement for Salient Object Detection
19. …

Topic 3：Object Segmentation

1. Patchwork: A Patch-Wise Attention Network for Efficient Object Detection and Segmentation in Video Streams
2. MHP-VOS: Multiple Hypotheses Propagation for Video Object Segmentation
3. Spatiotemporal CNN for Video Object Segmentation
4. Learning Unsupervised Video Object Segmentation Through Visual Attention
5. SAIL-VOS: Semantic Amodal Instance Level Video Object Segmentation - A Synthetic Dataset and Baselines
6. See More, Know More: Unsupervised Video Object Segmentation With Co-Attention Siamese Networks
7. Fast User-Guided Video Object Segmentation by Interaction-And-Propagation Networks
8. RVOS: End-To-End Recurrent Network for Video Object Segmentation
9. ZigZagNet: Fusing Top-Down and Bottom-Up Context for Object Segmentation
10. BubbleNets: Learning to Select the Guidance Frame in Video Object Segmentation by Deep Sorting Frames
11. Convex Shape Prior for Multi-Object Segmentation Using a Single Level Set Function
12. Anchor Diffusion for Unsupervised Video Object Segmentation
13. TensorMask: A Foundation for Dense Object Segmentation
14. DMM-Net: Differentiable Mask-Matching Network for Video Object Segmentation
15. AGSS-VOS: Attention Guided Single-Shot Video Object Segmentation
16. RANet: Ranking Attention Network for Fast Video Object Segmentation
17. Fast Video Object Segmentation via Dynamic Targeting Network
18. CapsuleVOS: Semi-Supervised Video Object Segmentation Using Capsule Routing
19. …

Any other topic which is relevant to deep learning …

Need to provide the detailed information of the paper you choose, *e.g.*, BibTex format:

```
@InProceedings{
        author = {Huang, Yan and Wu, Qi and Song, Chunfeng and Wang, Liang},
        title = {Learning Semantic Concepts and Order for Image and Sentence Matching},
        booktitle = {The IEEE Conference on Computer Vision and Pattern Recognition (CVPR)},
        year = {2018}
}
```