Weekly Report

Adviser: Prof. Yang Wen
Student: Cheng Wensheng
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***Abstract*—This week I mainly put my effort on writing project application and reading the paper about multi-scale context semantic segmentation.**

I. Paper Reading

THE paper's title is *Multi-scale context intertwining for semantic segmentation*. In this paper, they propose a novel scheme for aggregating features from different scales, which they refer to as Multi-Scale Context Intertwining (MSCI). In summary, the following points show their main contributions:

- They present a multi-scale context intertwining (MSCI) architecture, where the context information can be propagated along different dimensions. The first dimension is along the vertical deep hierarchy: their context intertwining scheme has connections to exchange the multi-scale context information between the adjacent feature maps. The connection is bidirectional with two different long short-term memory (LSTM) chains that intertwines feature maps of different resolution in a sequence of stages. By training the LSTM units, the bidirectional connections learn to produce more powerful feature maps.
- The second dimension is along the horizontal hierarchy: the feature maps produced by their bidirectional connections are fed to the next phase of context intertwining, which can encode the context information memorized by their bidirectional connections into the new feature maps.
- Rather than using fixed information propagation routes, they subdivide images into super-pixels, and use the spatial relationship between them in order to perform image-adapted context aggregation. Their extensive evaluation on public benchmarks indicates that all of the aforementioned components of their approach increase the effectiveness of information propagation throughout the network, and significantly improve its eventual segmentation accuracy.

Fig. 1 is the overview of multi-scale context interwining network. Fig. 2 is the segmentation results of MSCI and other SOTA models.

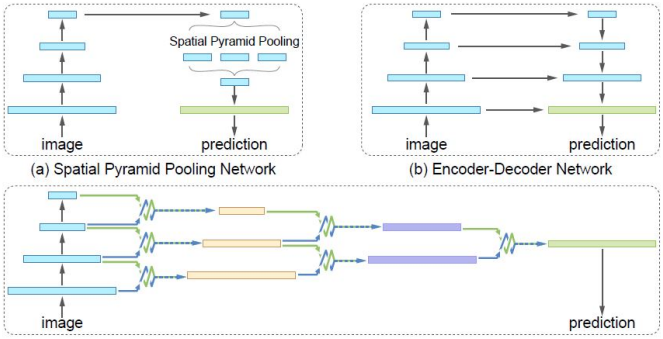

Fig. 1: Multi-Scale context interwining network.

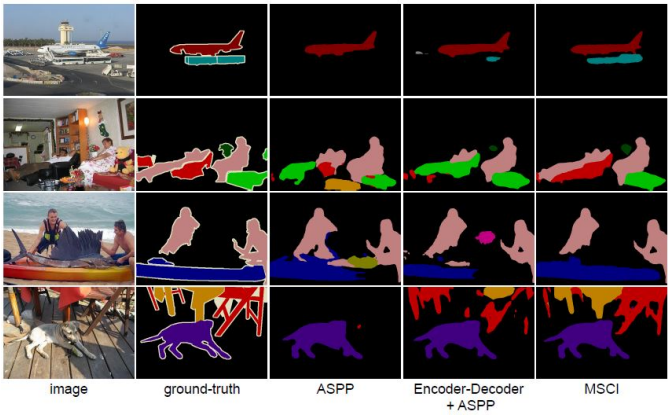

Fig. 2: Segmentation results of MSCI and other SOTA models.