Weekly Report

February 5, 2018

1 2018.1.31

1.1 Random sketch deformation

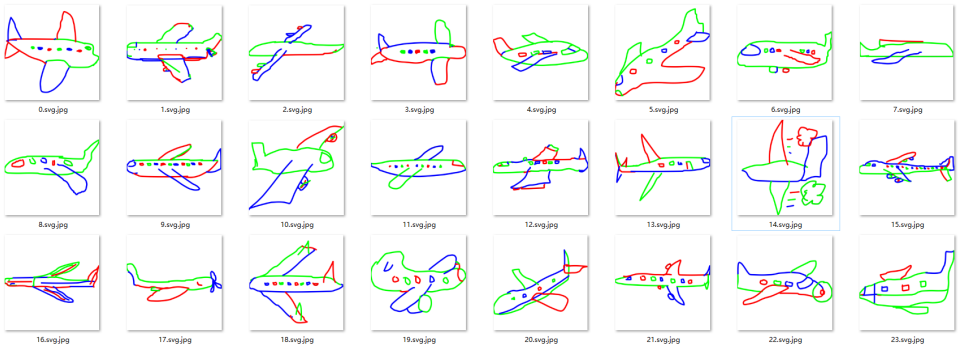

Figure 1: before deformation

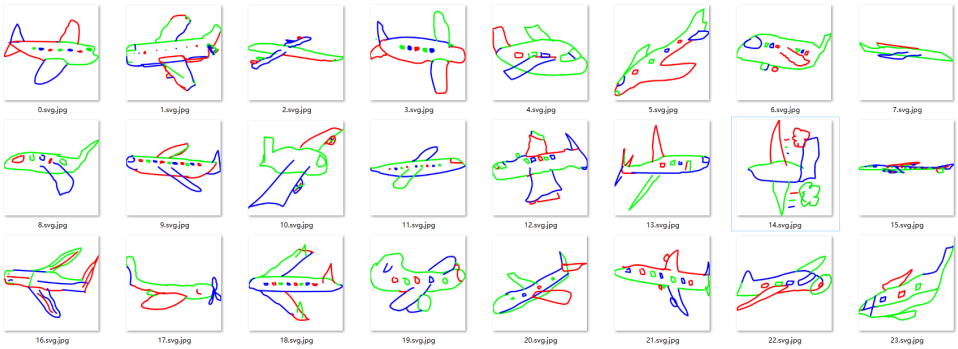

Figure 2: after deformation(with a fixed jittering range (0.1,0.3))

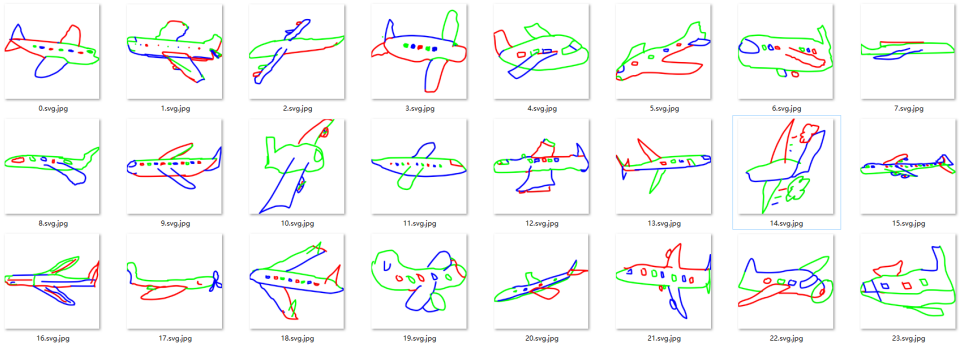

Figure 3: after deformation(adjust jittering range according to sample width and height)

1.2 Stroke removal

Design a proper weight. When number of strokes in a sketch is fewer, the strokes are tend to be preserved.

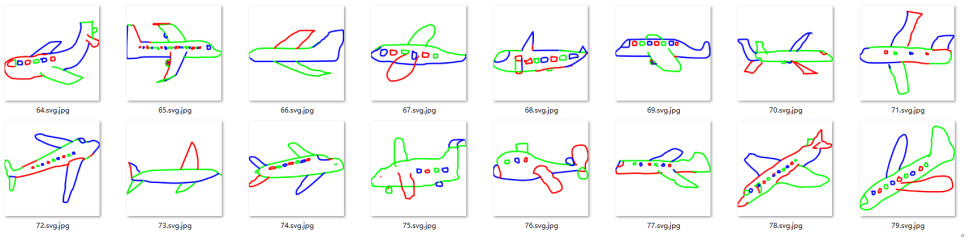

Figure 4: before deletion

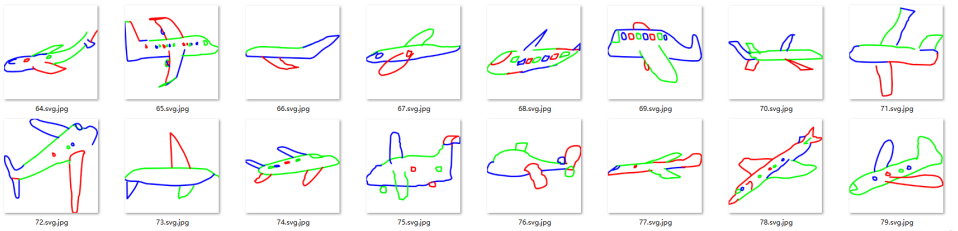

Figure 5: after deletion(remove 40% strokes)

1.3 Data augmentation experiments

Data augmentation:

1. random deformation 3 times(range(0.1,0.3))
2. stroke removal 3 times(0.2,0.4,0.6)

micro PointNet P1	micro PointNet P2	PointNet P3	testing acc
shared mlp(8,16,64)	shared mlp(32,32,128)	shared mlp(64,128,1024)	71.7%

Table 1: Trials.

P1 input	P1 output	P2 input	P2 output
512x30x3	512x2	256x100x(3+2)	256x32

Table 2: Trials.

Data augmentation:

1. random deformation 3 times(range(0.1,0.3))
2. stroke removal 3 times(0.2)

micro PointNet P1	micro PointNet P2	PointNet P3	testing acc
shared mlp(8,16,64)	shared mlp(32,32,128)	shared mlp(64,128,1024)	73.5%

Table 3: Trials.

1.4 TO DO:

P1 input	P1 output	P2 input	P2 output	change
512x30x3	512x2	256x100x(3+2)	256x29	current
512x30x2	512x2	256x100x(2+2)	256x29	remove stroke order
512x20x3	512x2	256x100x(3+2)	256x29	reduce group 1 size
512x10x3	512x2	256x100x(3+2)	256x29	reduce group 1 size
256x30x3	256x2	128x50x(3+2)	128x29	reduce group1 sampling frequence
128x30x3	128x2	64x25x(3+2)	64x29	reduce group1 sampling frequence
512x30x3	512x2	-	-	reduce group2

Table 4: To do.

1. Run TU-Berlin dataset(sampling sketches with space)
2. Reaugment data.
3. Sample sketch into (512,256,128).

2 2018.2.1

所有训练只进行一次，没有进行数据增强。使用的网络参数如下

micro PointNet P1	micro PointNet P2	PointNet P3
shared mlp(8,16,64)	shared mlp(32,32,128)	shared mlp(64,128,1024)

Table 5: Arc.

改变group scheme,内容如下

P1 input	P1 output	P2 input	P2 output	acc
512x30x3	512x2	256x100x(3+2)	256x29	69.3%
512x30x2	512x2	256x100x(2+2)	256x29	-
512x20x3	512x2	256x100x(3+2)	256x29	69.6%
512x10x3	512x2	256x100x(3+2)	256x29	69.2%
256x30x3	256x2	128x100x(3+2)	128x29	70.6%
128x30x3	128x2	64x100x(3+2)	64x29	69.55%
64x30x3	128x2	16x100x(3+2)	64x29	59%
512x30x3	512x2	-	-	-

Table 6: Trials.

3 2018.2.2

依然沿用2.1的网络结构，该边group方案

P1 input	P1 output	P2 input	P2 output	acc
128x30x3	128x2	64x64x(3+2)	64x29	69.8%
128x30x3	128x2	32x64x(2+2)	64x29	67%
128x16x3	128x2	64x64x(3+2)	64x29	69.2%
128x16x3	128x2	64x32x(3+2)	64x29	69.5%

Table 7: Trials.

改变网络结构，并使用之前最好的group scheme。

P1 input	P1 output	P2 input	P2 output
256x30x3	256x2	128x100x(3+2)	128x29

Table 8: Group scheme.

P1	P2	P3	acc
8,16,64	32,32,128	64,128,1024	70.6%
8,16,64	32,32,128	64,64,512	67%
8,16,64	32,32,128	64,256,2048	69.5%

Table 9: Arc.

4 2018.2.3-2018.2.4

单层group结构的准确率

P1 input	P1 output	P2 input	P2 output	acc
128x16x3	128x2	-	-	67%

Table 10: Trials.

1. 所有数据重新采样和group完成
2. 目前group方案为256x18, 128x64，网络结构为mlp(8,16,64),mlp(32,32,128),mlp(64,128,1024)效果最好，所以后面实验按照这套方案做下去
3. 利用空间点密度信息的数据刚刚做完

split	iteration	acc
1	1	70.8%
1	2	73.8%
1	3	73.3%
2	1	x%
2	2	x%
2	3	x%
3	1	x%
3	2	x%
3	3	x%

Table 11: Trials.

4.1 TO DO

1. 把Table 11 中的未完成实验跑完
2. 把根据空间点密度采样的数据跑完
3. 把没加stroke order信息的数据跑完
4. 把Sketch采样成512，256，128点的数据跑完