A	1st stage	B	2nd stage
1	conv(2,64,3,3)	1	conv(128,128,3,3)
2	pool(2,2)	2	pool(2,2)
3	batch-norm	3	conv(n,128,k,k)
4	conv(2,128,3,3)	4	global
5	pool(2,2)	5	fc(512)
6	batch-norm	6	softmax(n)
7	conv(1,128,3,3)	1	conv(2,64,3,3)
8	pool(2, 2)	2	pool(2,2)
9	batch-norm	3	conv(2,128,3,3)
10	conv(1,128,3,3)	4	pool(2,2)
11	pool(2, 2)	5	conv(128,128,3,3)
12	batch-norm	6	pool(2,2)
13	fc(3,1024)	7	conv(n,128,k,k)
14	fc(1, 2)	8	global
15	STN(15, 8)	9	fc(512)
		10	softmax(n)