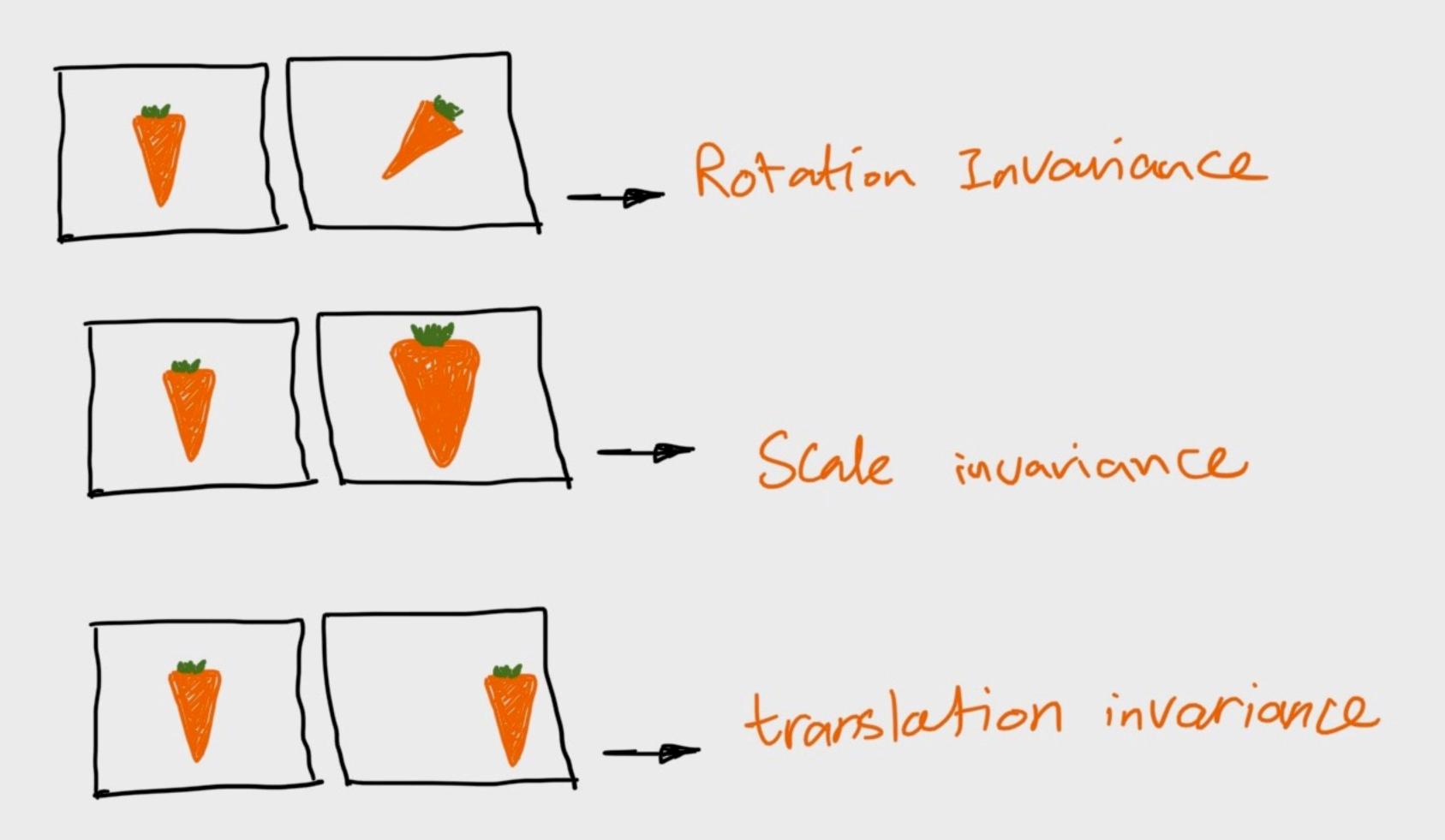
## Invariant Representation



FIdeally, a model should understand the above.

CNNs have translation invariance (partial):

(				(	1			
5	2	8	5	15	5	2	8	5
7	3	9	2		7	3	9	2
2	Ī	4	6	1	2	1	4	6
T								
1								
	5 7	5 2 7 3 1	5 2 8 7 3 9 1 4	5     2     8     5       7     3     9     2       1     4     6	5 2 8 5 5 7 3 9 2 1 4 6	5     2     8     5       7     3     9     2       2     1     4     6       2     4     6	5     2     8     5     2       7     3     9     2     7     3       1     1     4     6     1     1	5     2     8     5     2     8       7     3     9     2     7     3     9       1     1     4     6     1     1     4

Reason:

a little shifting

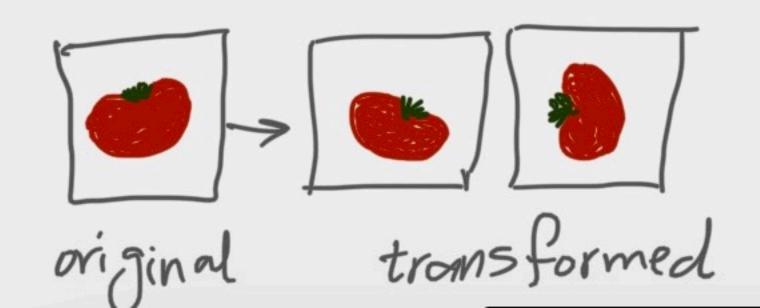
around does not

change manpool

result!

An strategy to make models invariant:

Data Augmentation



Benefits: avoiding overfitting in creasing the accuracy