

# Using StyleGAN for few-shot image segmentation

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# Semantic Image Segmentation



Input



- 1: Person
- 2: Purse
- 3: Plants/Grass
- 4: Sidewalk
- 5: Building/Structures

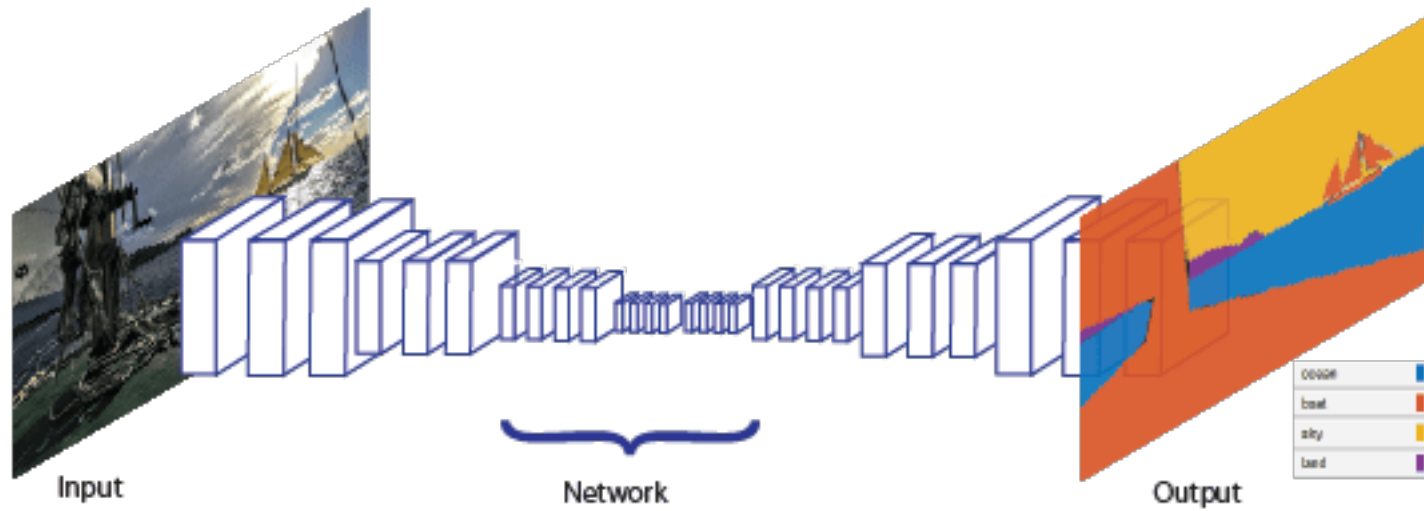
3	3	3	3	3	3	3	3	3	3	3	3	5	5	5	5	5	5
3	3	3	3	3	3	3	3	3	3	3	3	5	5	5	5	5	5
3	3	3	3	3	3	1	1	3	3	3	3	5	5	5	5	5	5
3	3	3	3	3	1	1	1	1	3	3	3	5	5	5	5	5	5
3	3	3	3	3	3	1	1	3	3	3	5	5	5	5	5	5	5
5	5	3	3	3	3	1	1	3	3	5	5	5	5	5	5	5	5
4	4	3	4	1	1	1	1	1	1	4	4	4	5	5	5	5	5
4	4	3	4	1	1	1	1	1	1	4	4	4	4	4	5	5	5
4	4	4	1	1	1	1	1	1	1	1	4	4	4	4	4	4	4
3	3	3	1	1	1	1	1	1	1	1	4	4	4	4	4	4	4
3	3	3	1	2	2	1	1	1	1	1	4	4	4	4	4	4	4
3	3	3	1	2	2	1	1	1	1	1	4	4	4	4	4	4	4

Semantic Labels

# Semantic Image Segmentation



# Current Approaches



1. Bigger and Bigger models

2. More Training Data

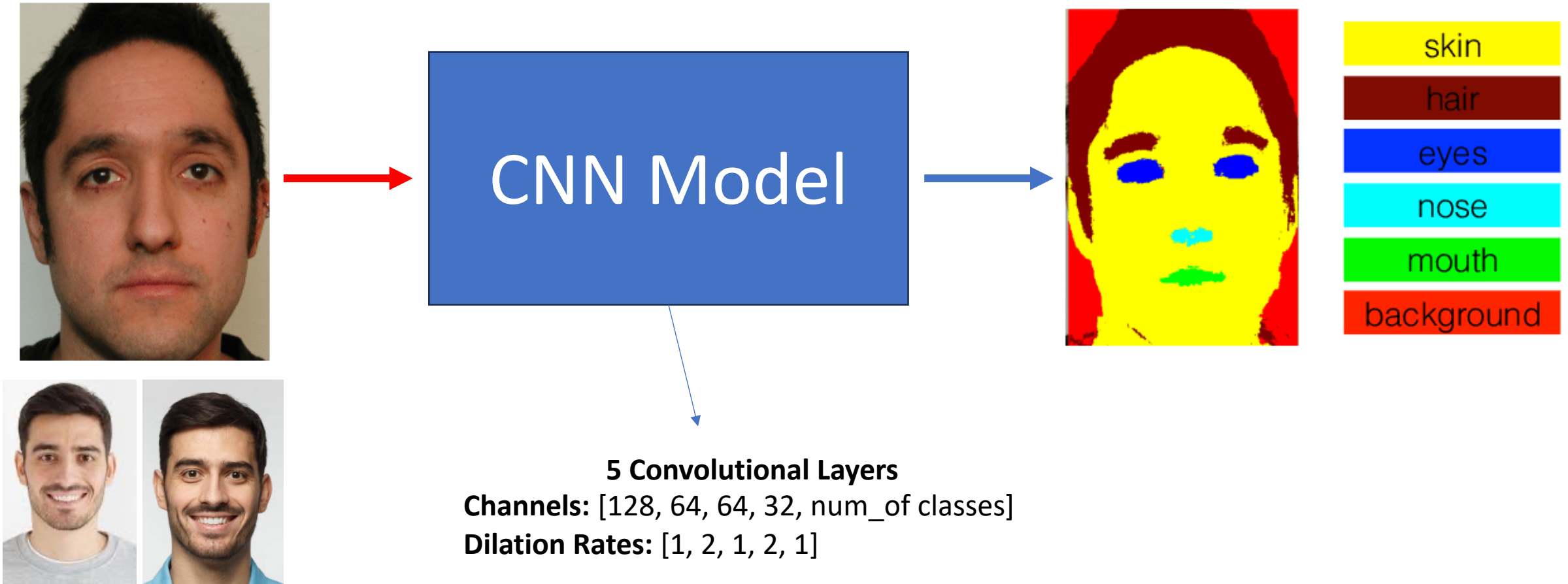
3. Overfitting Problems

# The way we recognize objects as humans

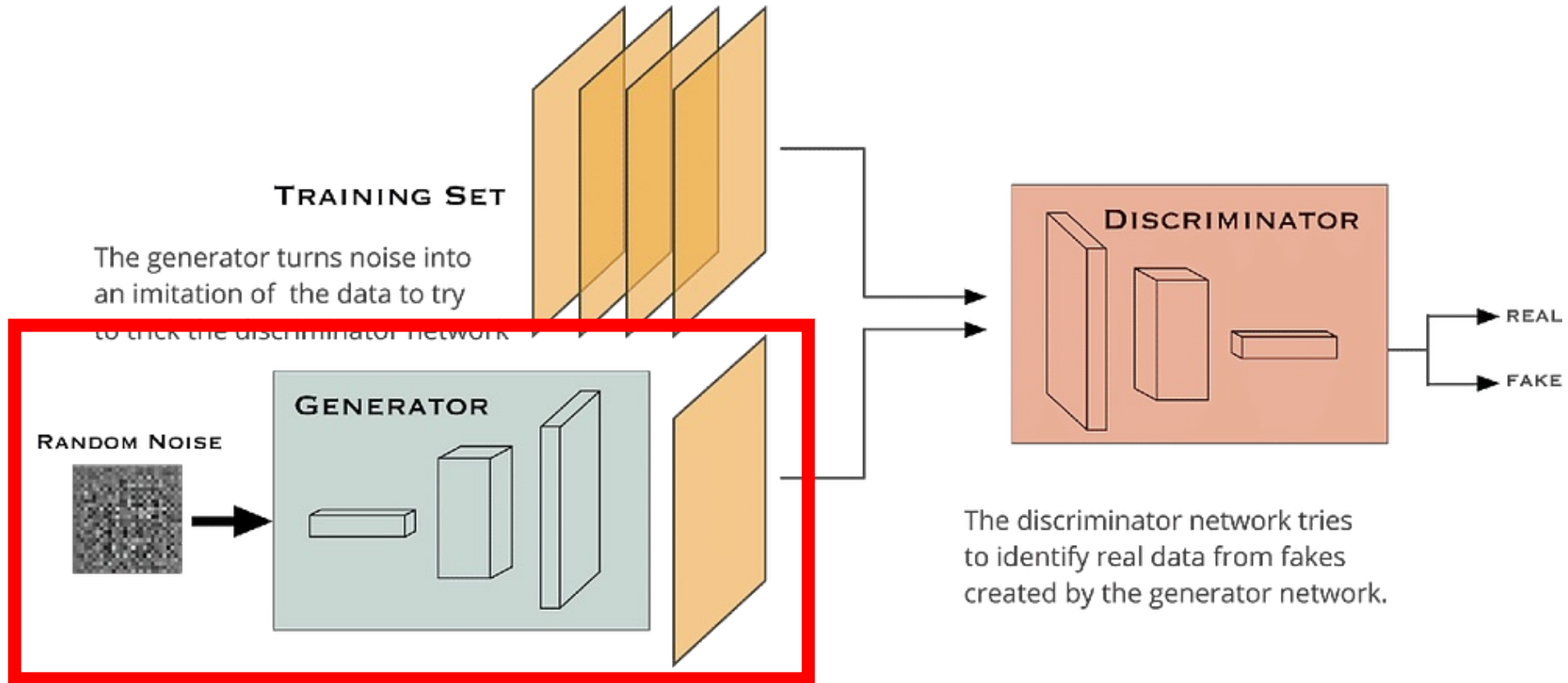


**That's Few-shot Learning!**

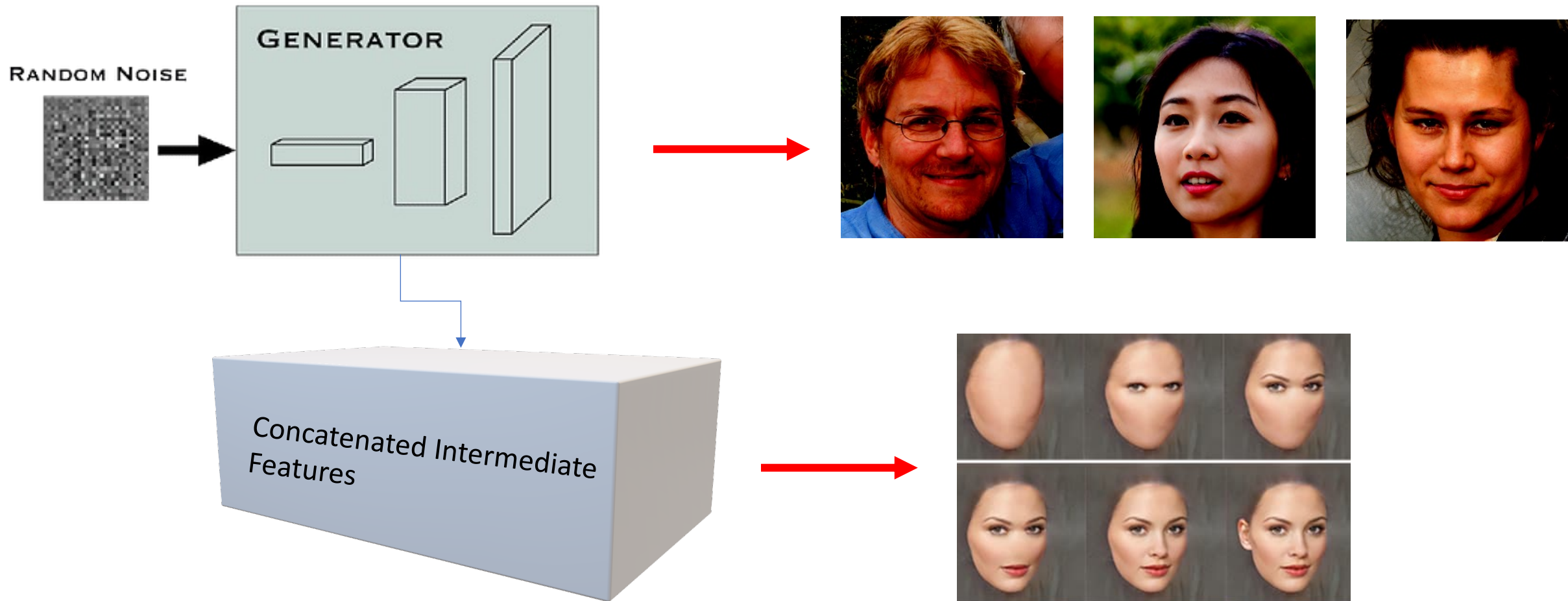
# The problem definition



# Style GAN v2

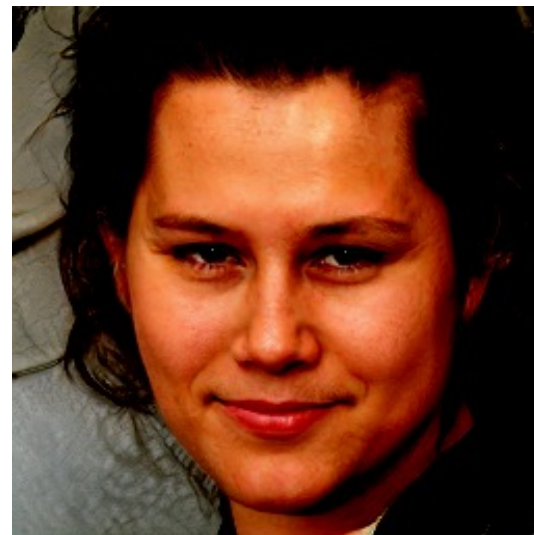


# Style GAN v2

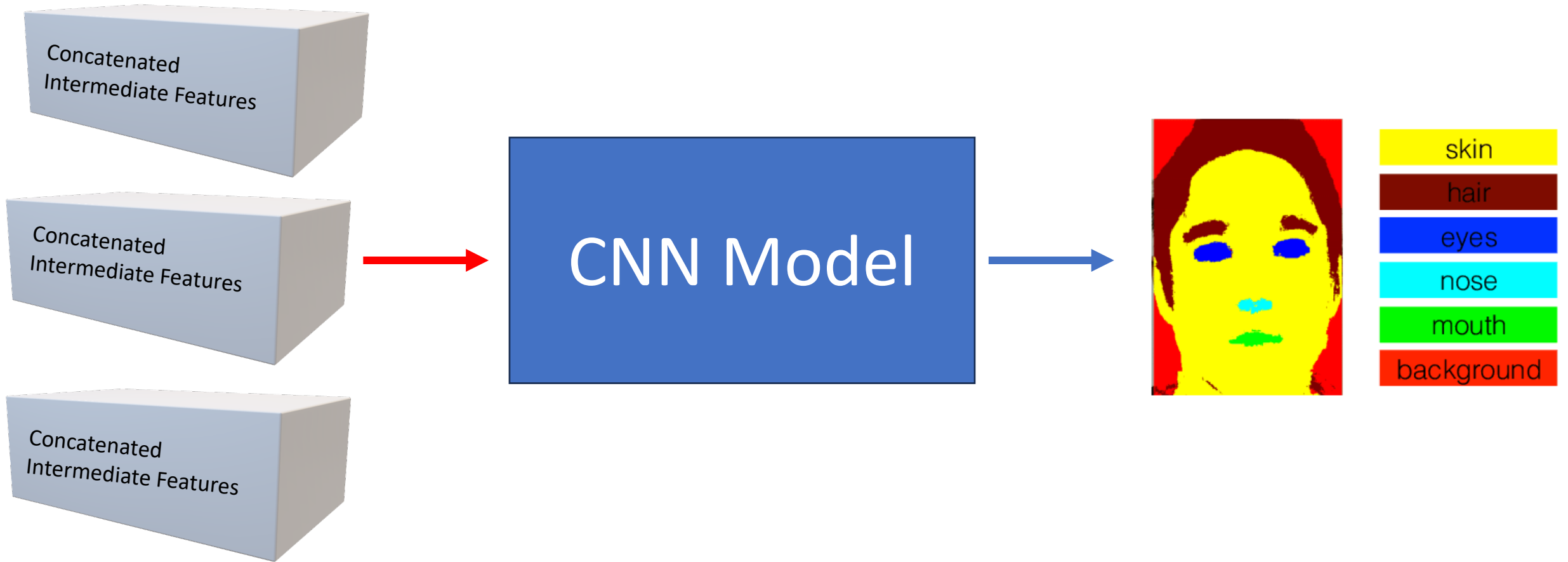




# Annotated Images



# The proposed framework

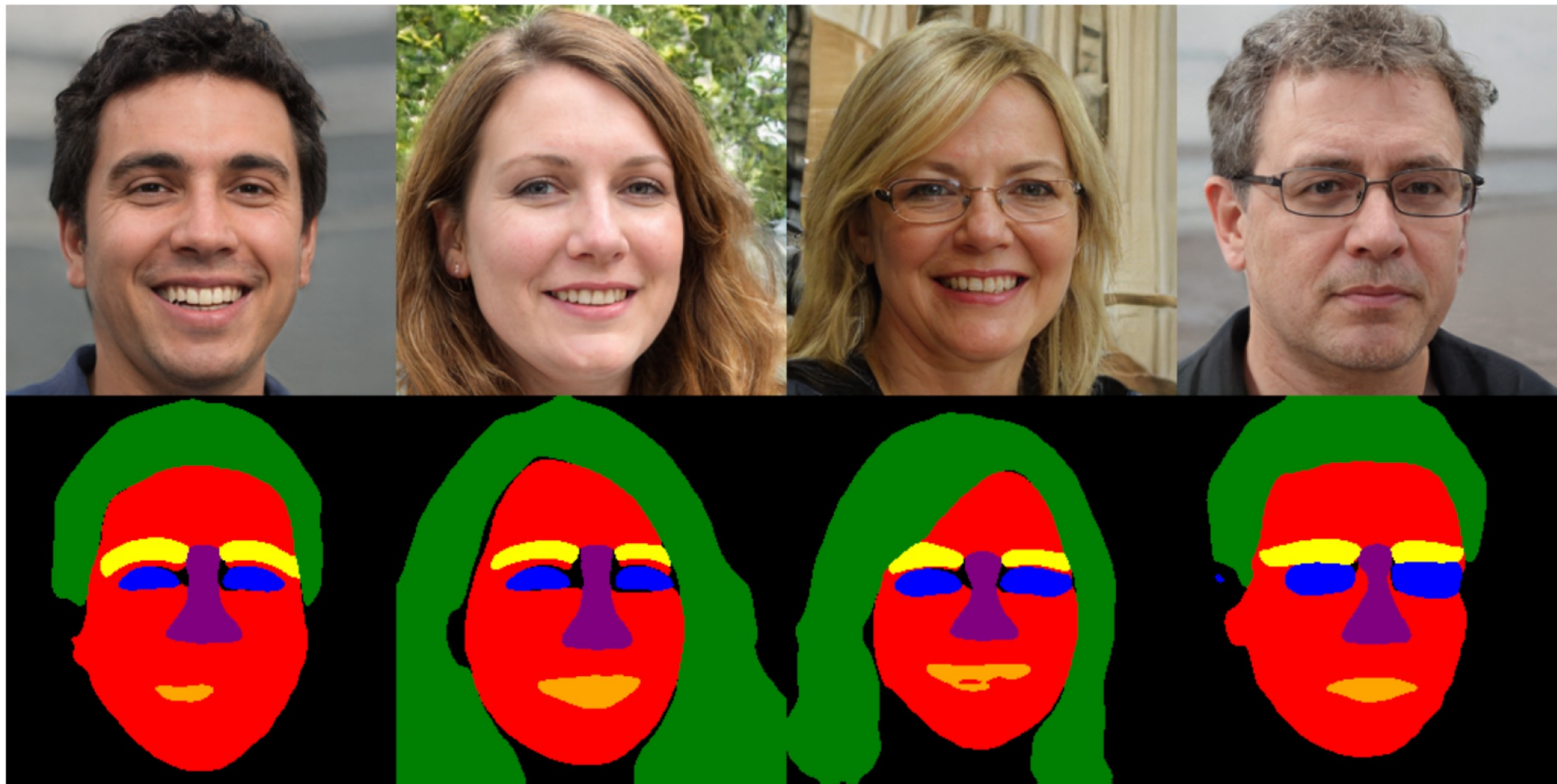


# Results

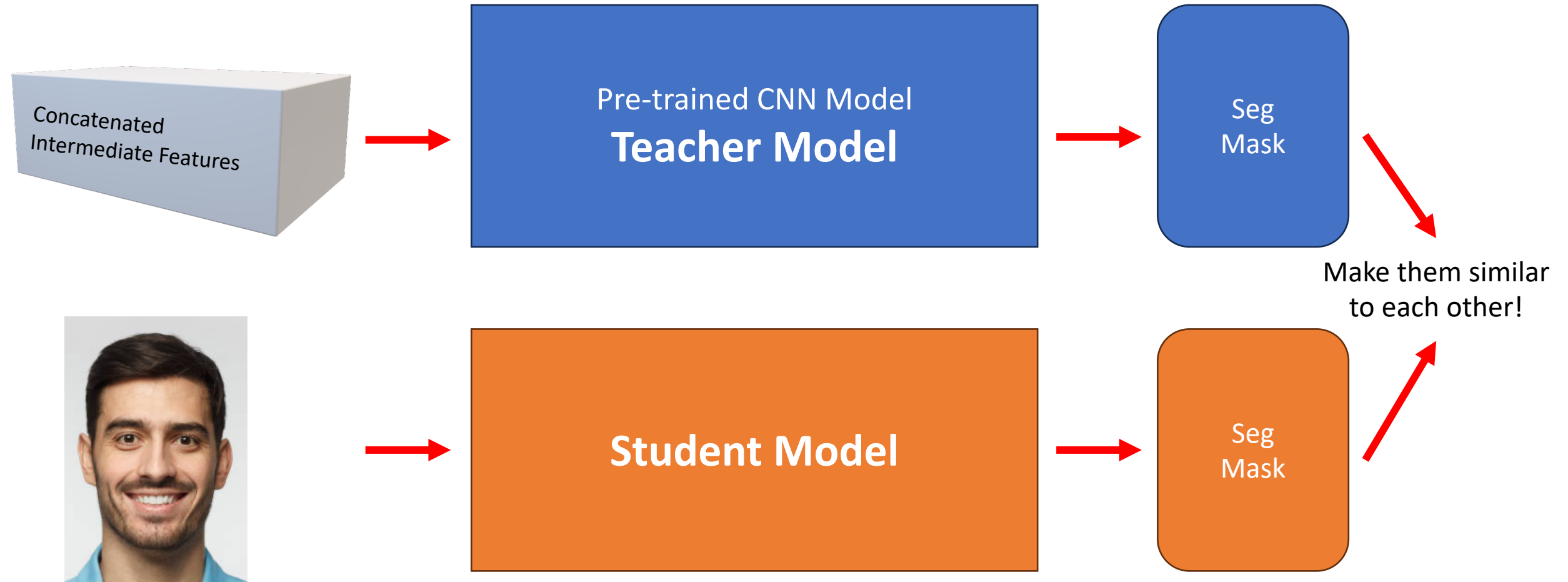
	<b>IoU With BG</b>	<b>IoU</b>	<b>Eyes</b>	<b>Mouth</b>	<b>Nose</b>	<b>Ears</b>	<b>Hair</b>	<b>Eyebrow s</b>	<b>Neck</b>
3-shot segmentation	68.1	66.57	70.9	76.6	81.2	21.0	77.8	59.9	71.1

# Results

(256, 1024, 3) (256, 1024, 3)



# Handling a Limitation



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