

Adversarial domain adaptation

- Two domains
 - e.g. mnist digits Vs actual digits on photos
- First domain is labeled,
second isn't
- Wanna learn for the second domain

Adversarial domain adaptation

- Two domains
 - handwritten digits
 - house number digits
- First domain is labeled, second isn't
- You want your model to work on the second domain



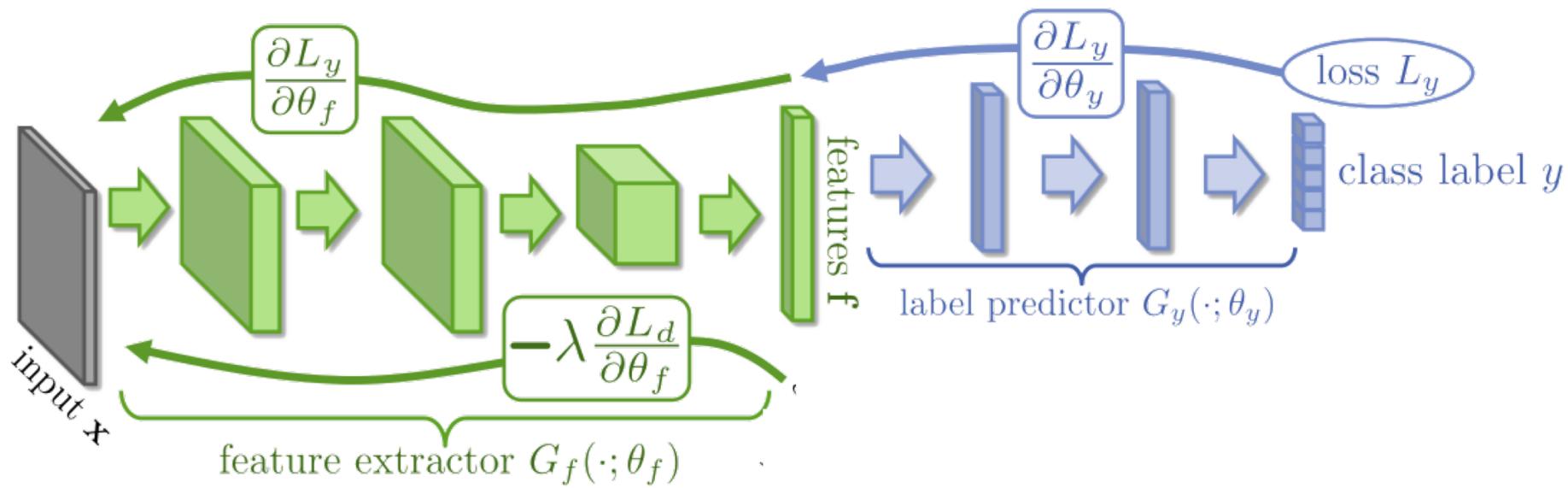
Labeled data



Unlabeled data

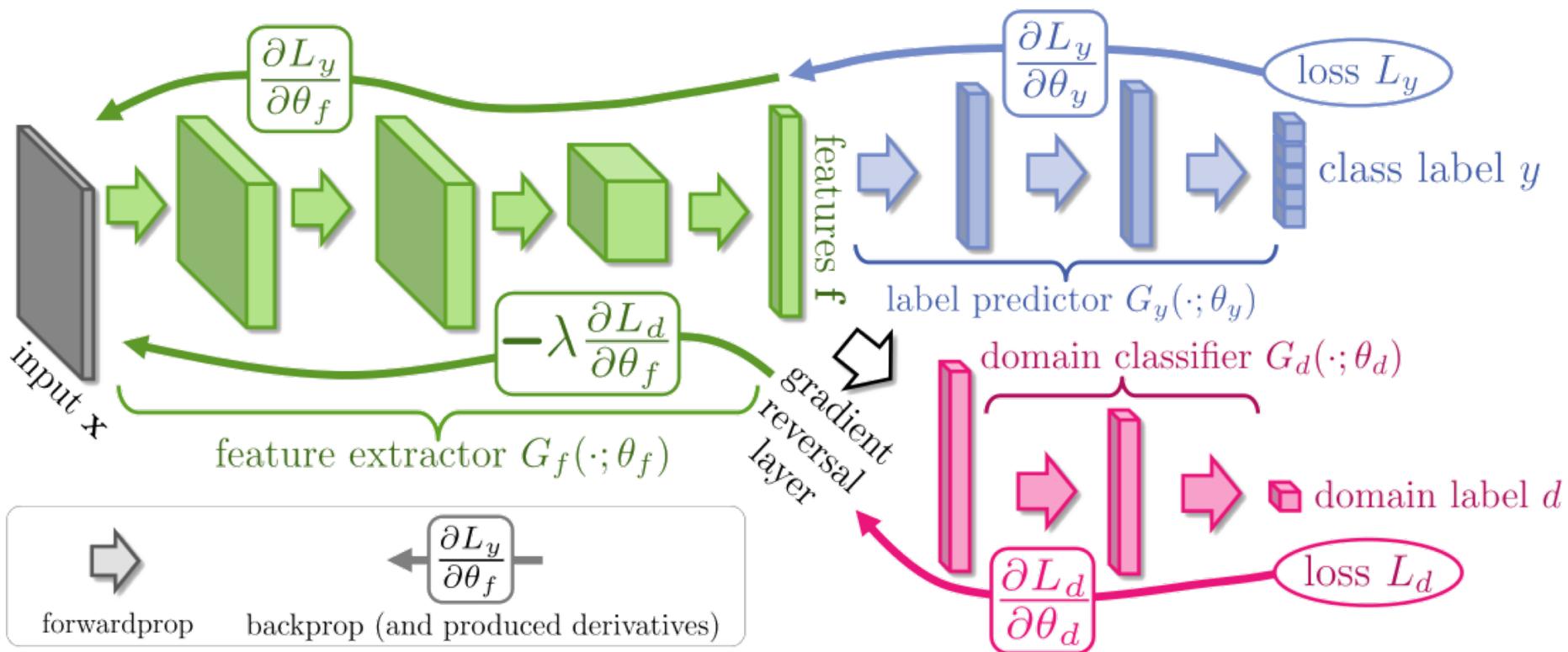
Domain adaptation

Idea: discriminator should not be able to distinguish features on two domains



Domain adaptation

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Domain adaptation

Idea: discriminator should not be able to distinguish features on two domains

$$-\log P(\text{real} | h(x_{\text{real}})) - \log [1 - P(\text{real} | h(x_{mc}))] \rightarrow \min_{\text{discriminator}}$$

$$L_{\text{classifier}}(y_{mc}, y(h(x_{mc}))) - \log P(\text{real} | h(x_{mc})) \rightarrow \min_{\text{classifier}}$$

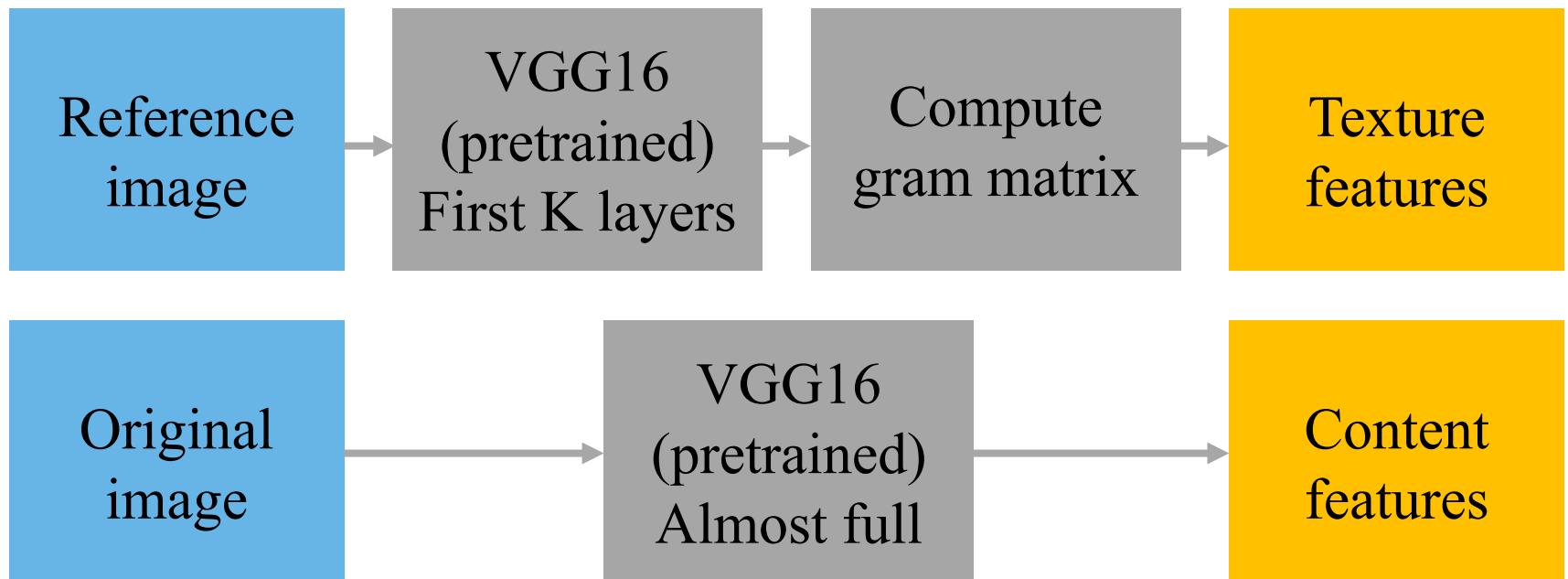
Art style transfer

Ideas?

Art style transfer

Formulate and optimize texture loss

$$L = \|Texture(x_{ref}) - Texture(x_{cand})\| + \|Content(x_{orig}) - Content(x_{cand})\|$$



Art style transfer



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