Image Super-Resolution Using Deep Convolutional Networks

Visual Computing Lab

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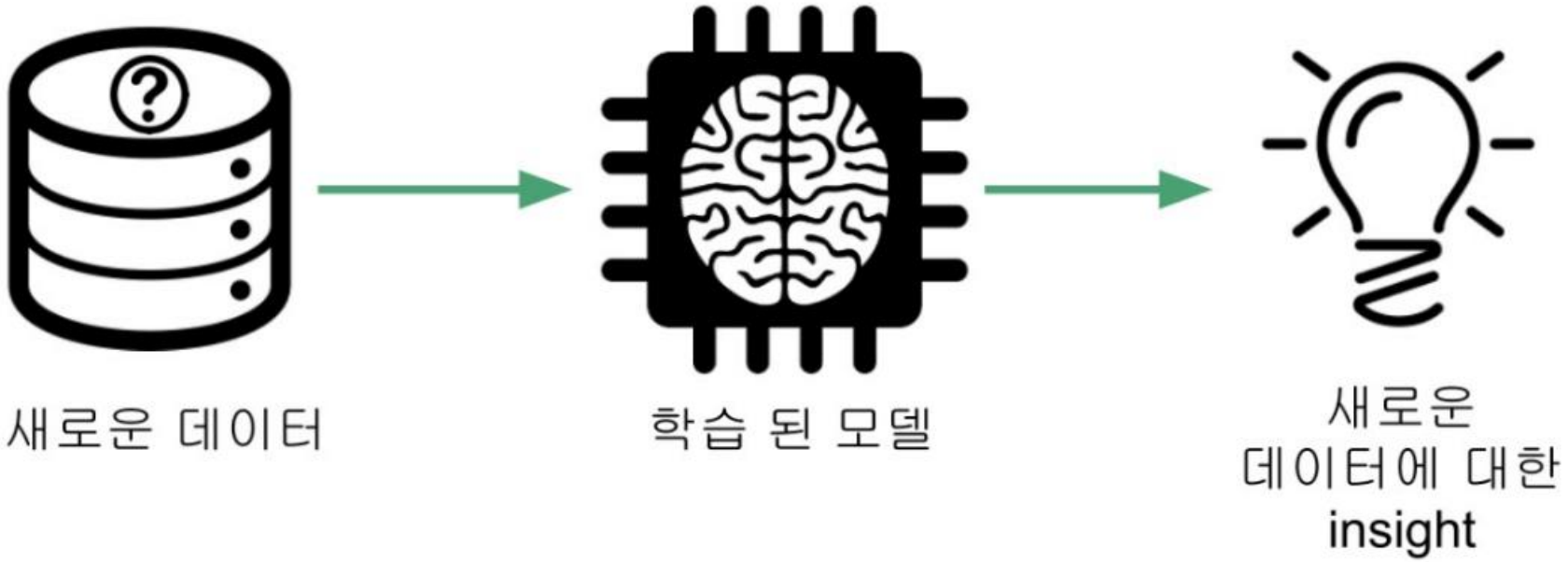
Order

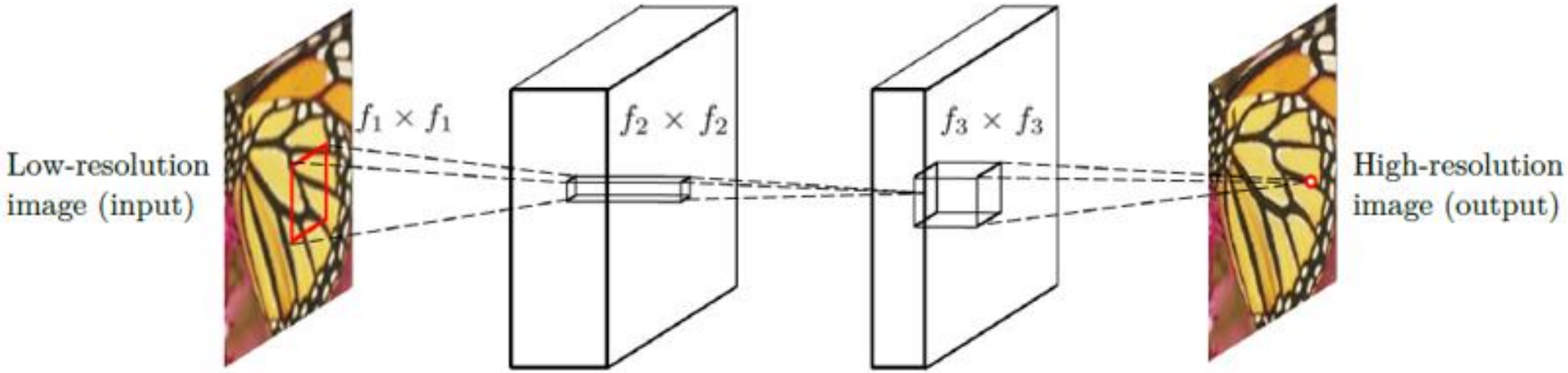
- Main Idea
- Formulation
- Data Set
- Input Data
- Loss function
- Future works

Machine Learning

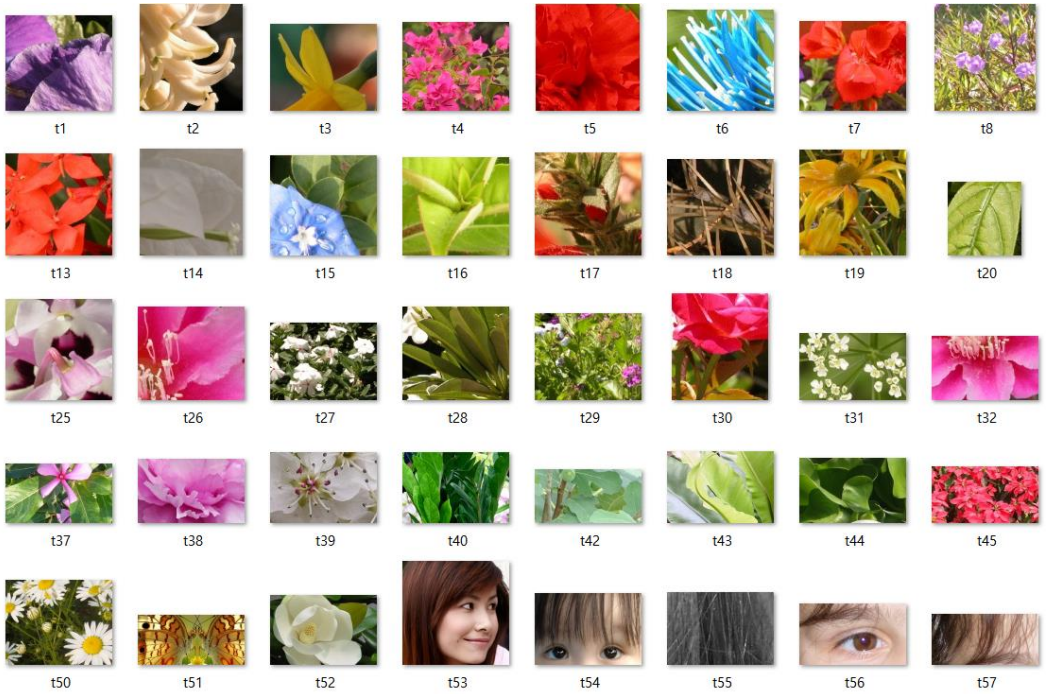
Machine Learning



Formulation



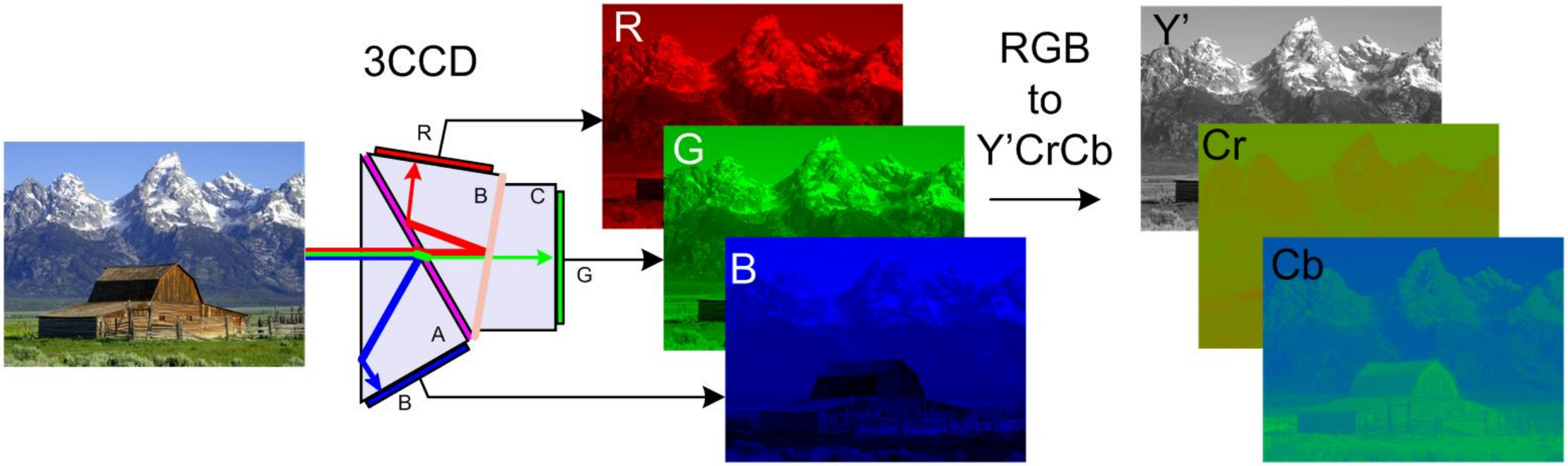
Data sets



Training Set 91 images
학습 데이터

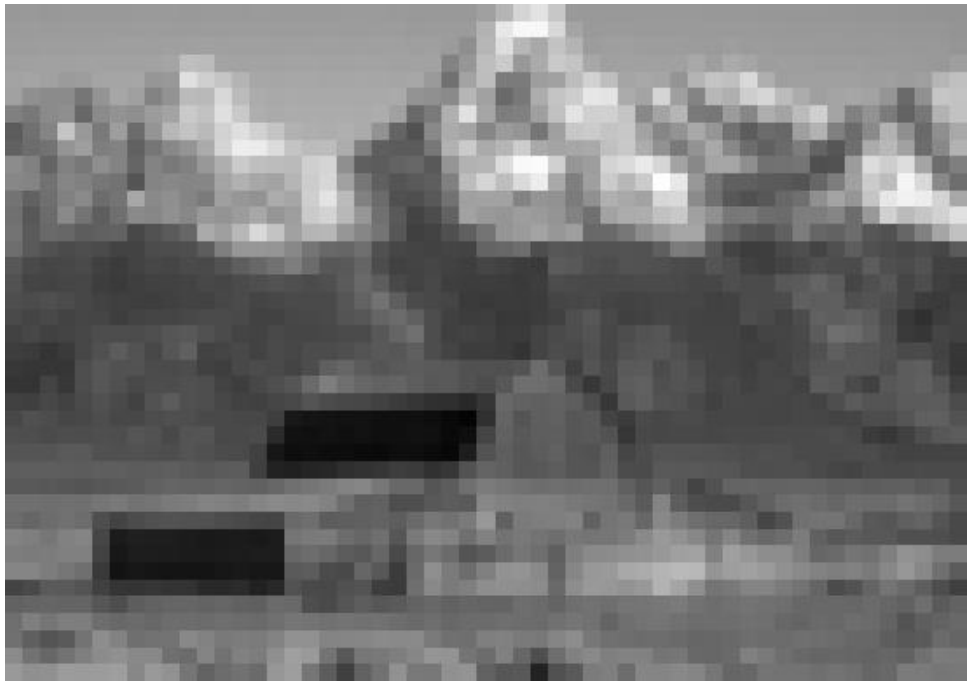
Test Set 5 images
새로운 데이터

Change into YCbCr



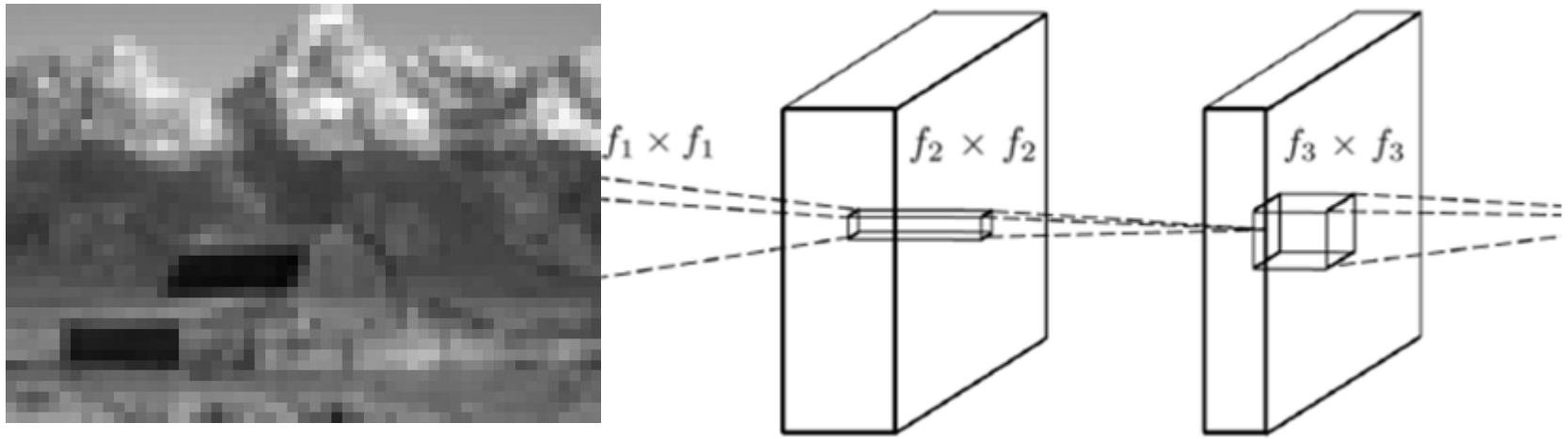
Make Input Data

Original image



Input image

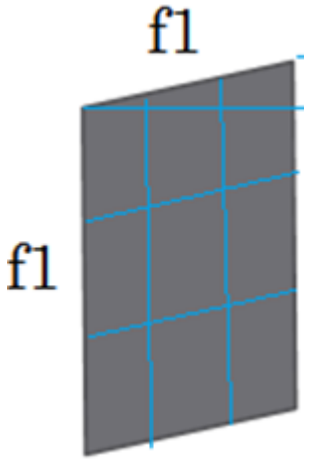
Formulation



Output image

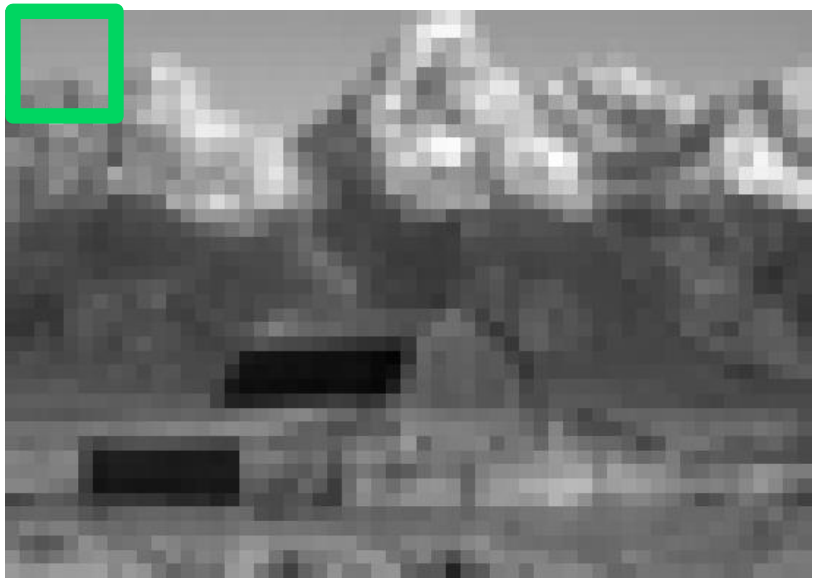
Original image

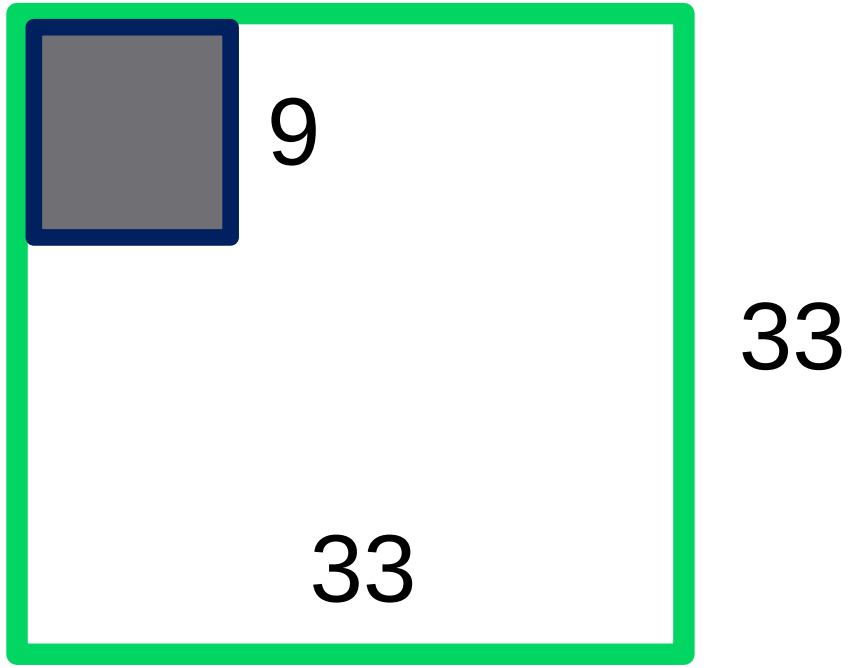
Divide to 33x33 small images



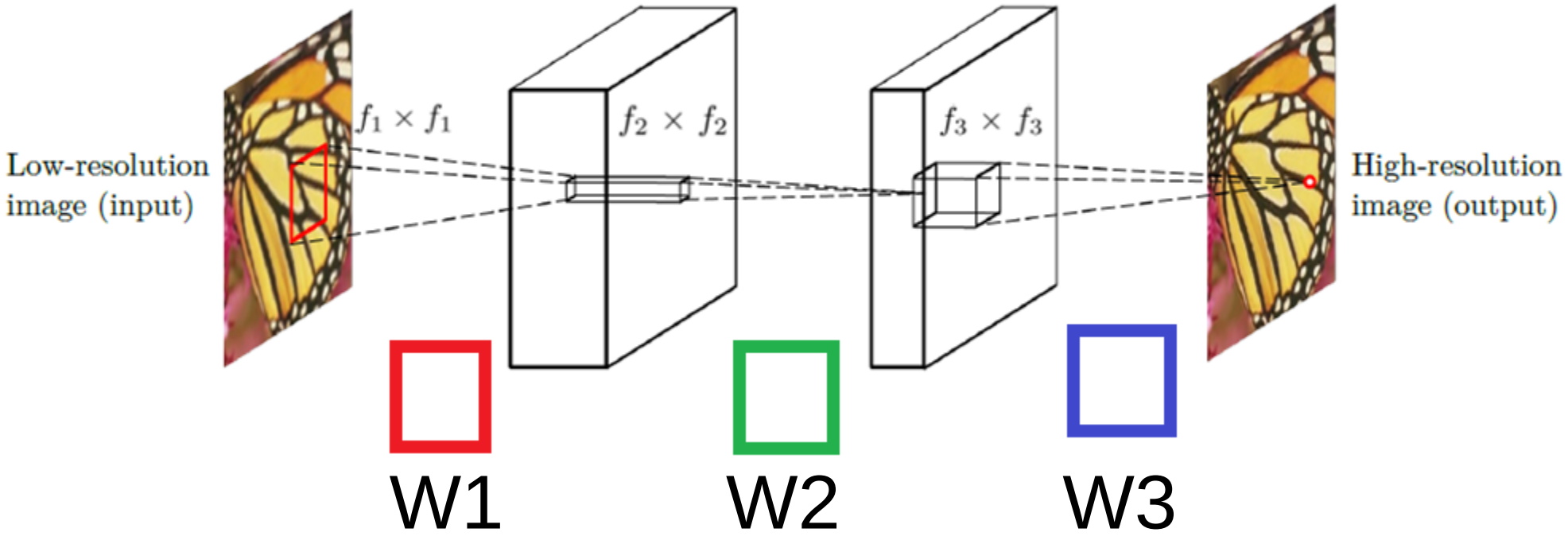
x n1

Filter





Formulation



Central pixels

33

33

Input small image

21

21

Output small image

Original small image

Loss Function

$$L(\Theta) = \frac{1}{n}\sum_{i=1}^{n} ||F(\mathbf{Y}_i;\Theta) - \mathbf{X}_i||^2$$

$$\Theta = \{W_1, W_2, W_3, B_1, B_2, B_3\}$$

Future works

- Tensorflow 구현