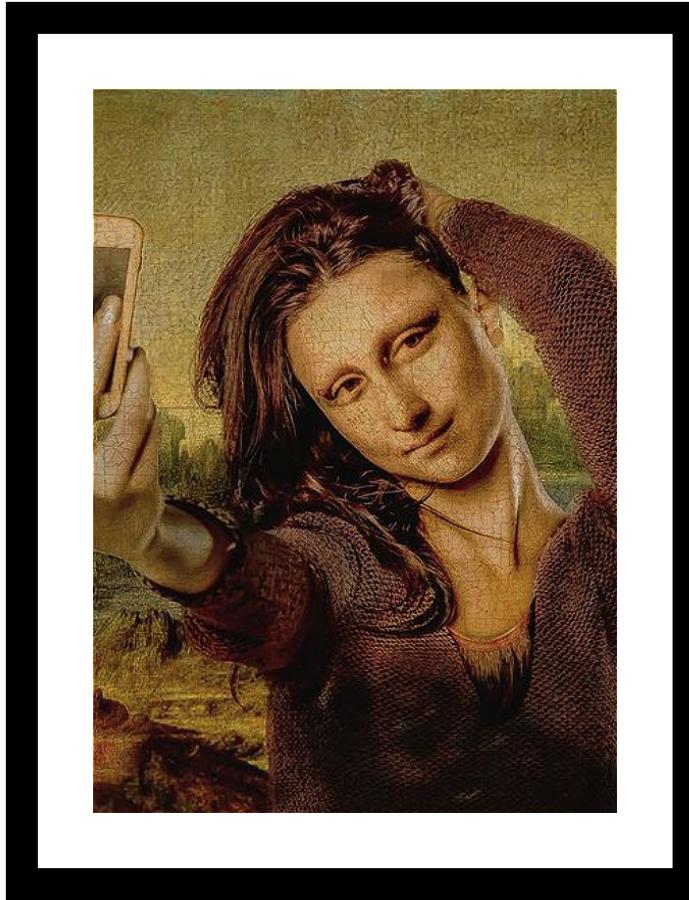
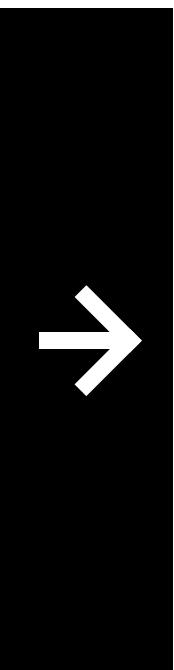


# SUPER RESOLUTION



≡ Group 9

Li, Yiwei (yl3950)  
Wu, Qianqian (qw2284)  
Xia, Xin (xx2295)  
Yin, Chao (cy2507)  
Zhang, Yun (yz3384)

# INDEX



**Project Goal**



**Baseline Model**

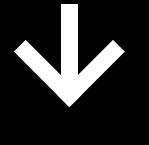


**Advanced Model**



**Improvement**

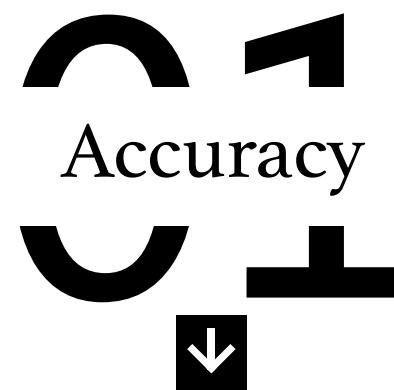
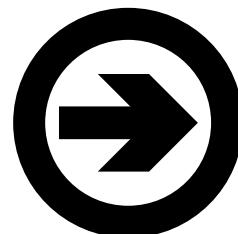




# PROJECT GOAL

“

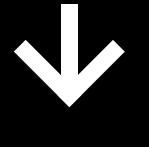
Produce a predicted high resolution image as output  
based on the blurry and low-resolution input.



PNSR



Running Time

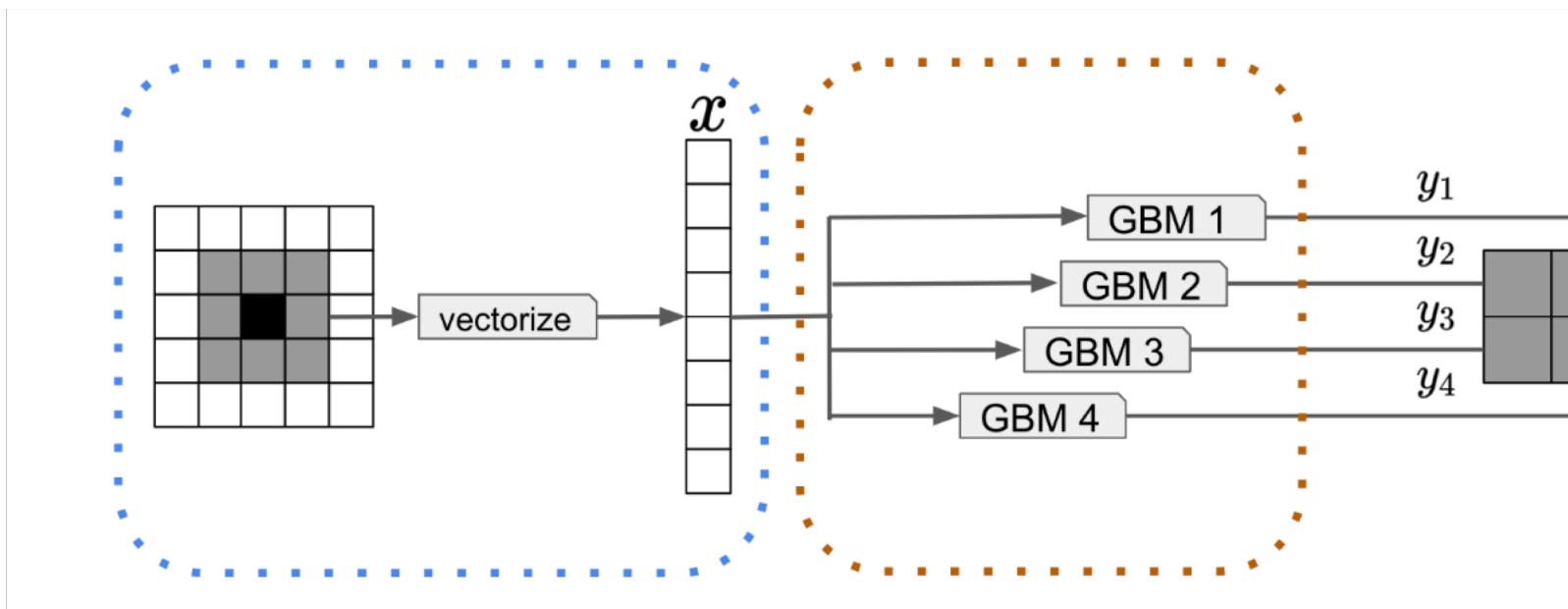


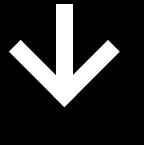
# BASELINE MODEL

## Feature Construction

G B M

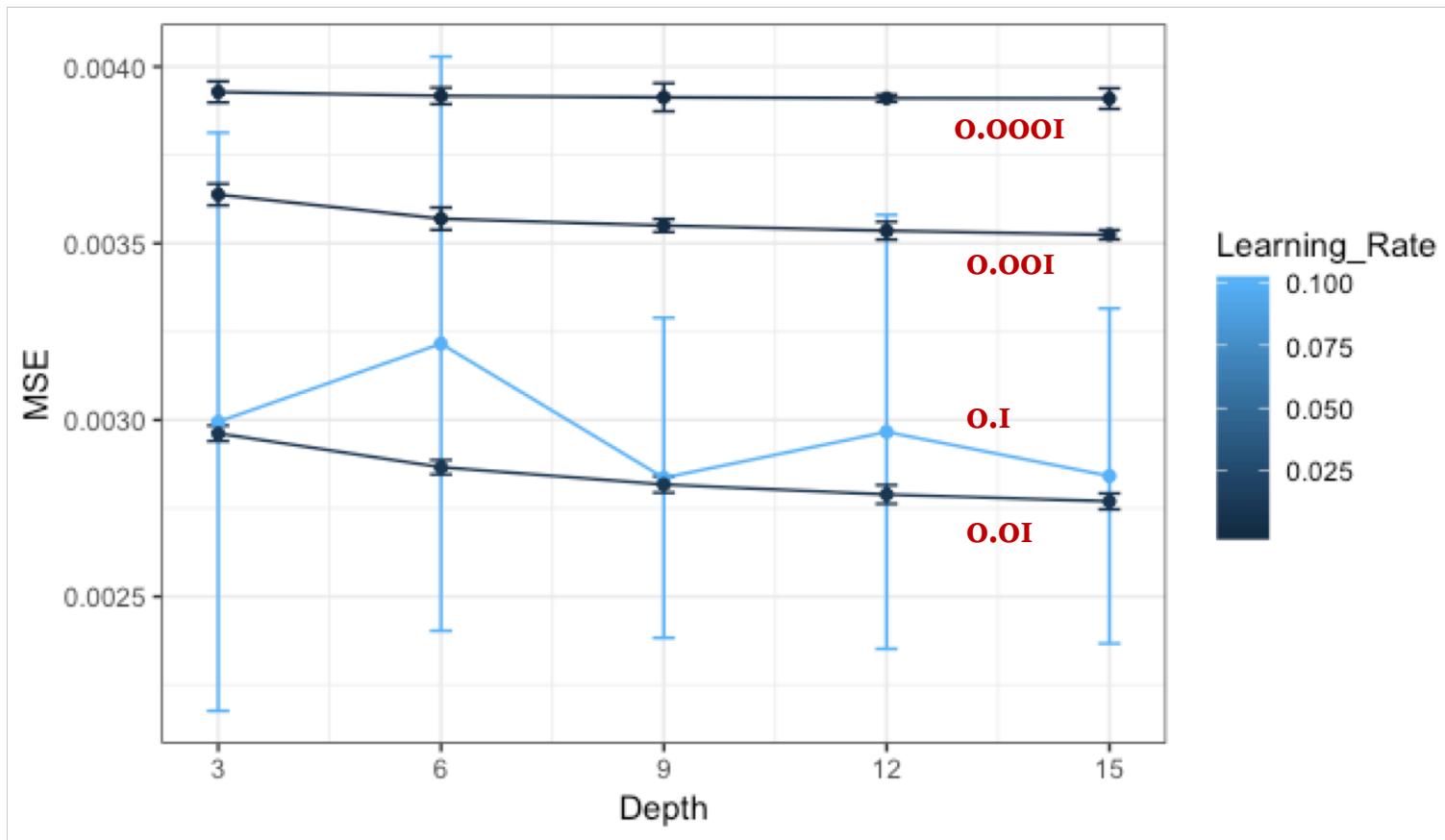
Patch-based algorithm, random sample





# BASELINE MODEL

## Feature Extraction



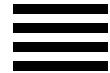
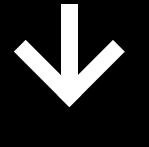
N.trees = 1000

Depth = c(3, 6, 9, 12, 15)

K = 10

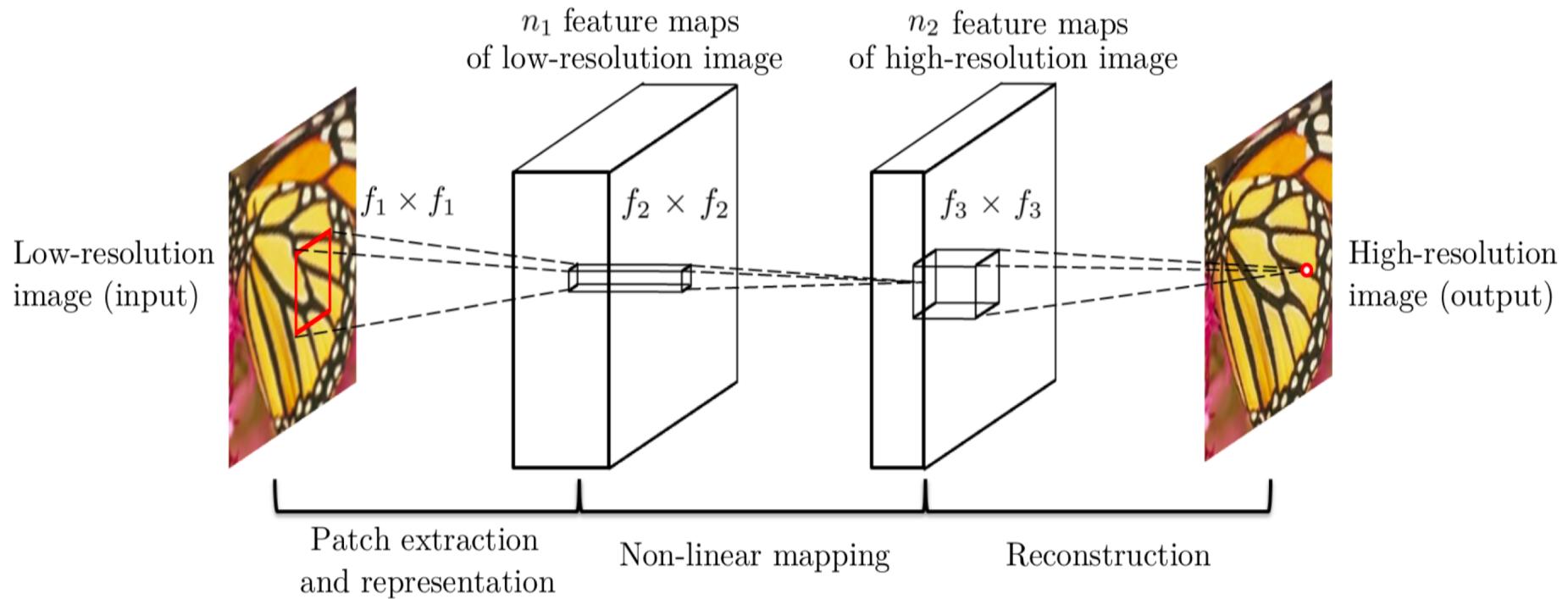
Learning rate = c(0.1, 0.01, 0.001, 0.0001)

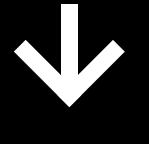
G B M



# ADVANCED MODEL

SRCNN





# ADVANCED MODEL

Random Crop = 30



Patch size = 33

Adam Learning Rate = 0.0003

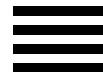
Validation Split = 0.2

Epoch = 100

Batch = 128

Color Chanel	Training		Validation	
	MSE	PSNR	MSE	PSNR
RGB	0.003	26.103	0.004	23.859
Y	0.002	26.771	0.004	24.541
YCrCb	0.001	30.597	0.001	28.435





# IMPROVEMENT

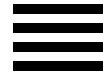
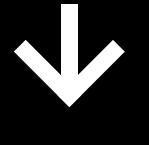
Category	Type	GBM	SRCNN	Improved %
Time	Feature construction	51.77	25.71	50%
	Model Training	2839.15	528.71	81%
	In Class Testing			
Accuracy	MSE	0.003	0.001	64%
	PSNR	25.576	30.063	18%



Further Potential Improvement...

**Baseline:** Increase number of points and features...

**Advanced:** Increase number of patches, layers and epoch...



# IMPROVEMENT



GBM



Original



SRCNN



# THE END

Thank you!

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2019

3.27

