

# Progress Report

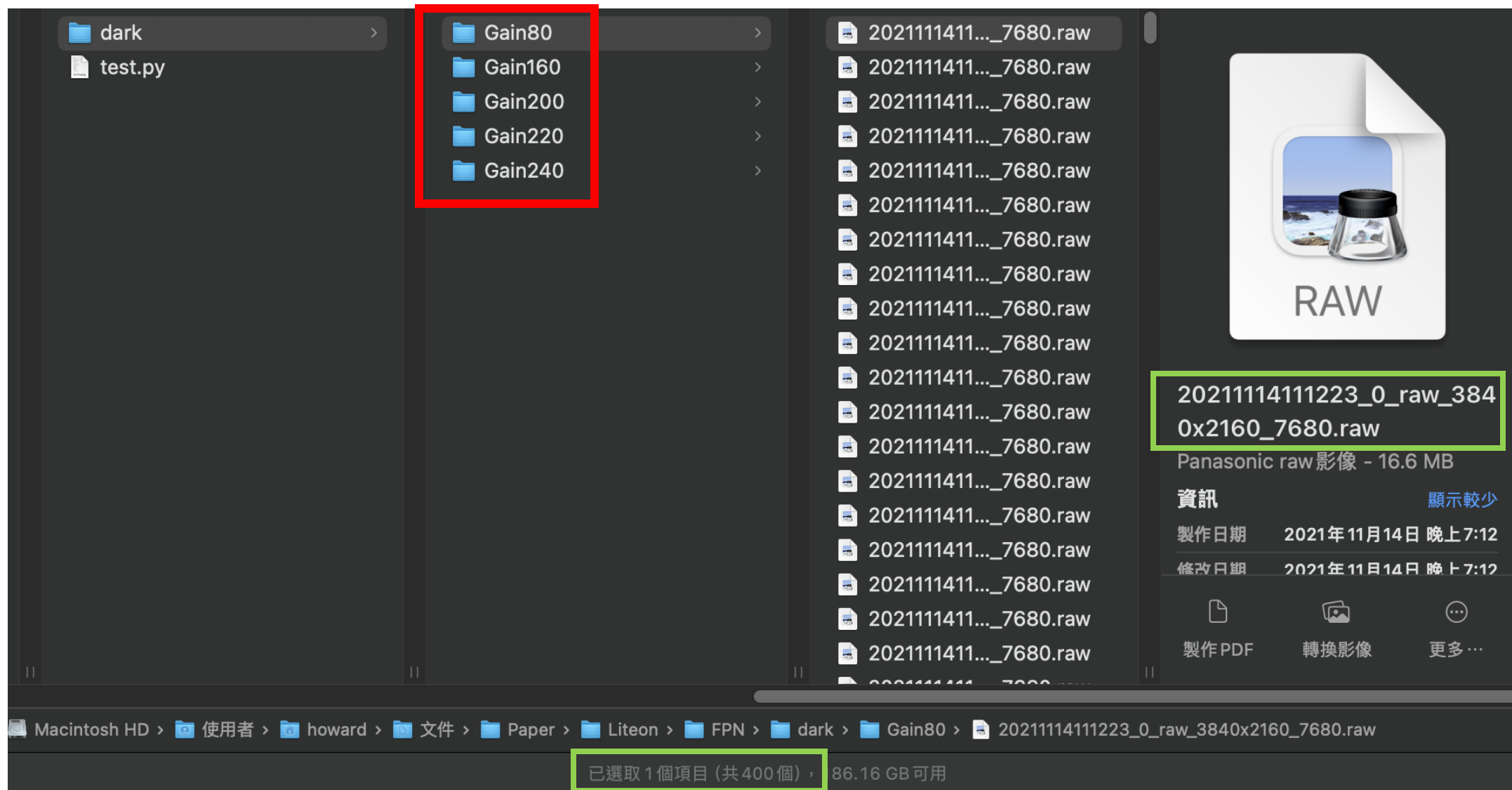
Presenter: Hao Wang

Advisor: Prof. Chia-Wen Lin

# Outline

- Dataset
- Paper survey

# Dataset



# Outline

- Dataset
- Paper survey
  - CEVR
  - LIIF

# Learning Continuous Exposure Value Representations for Single-Image HDR Reconstruction

Su-Kai Chen<sup>1,2</sup> Hung-Lin Yen<sup>1</sup> Yu-Lun Liu<sup>1</sup> Min-Hung Chen<sup>3</sup>

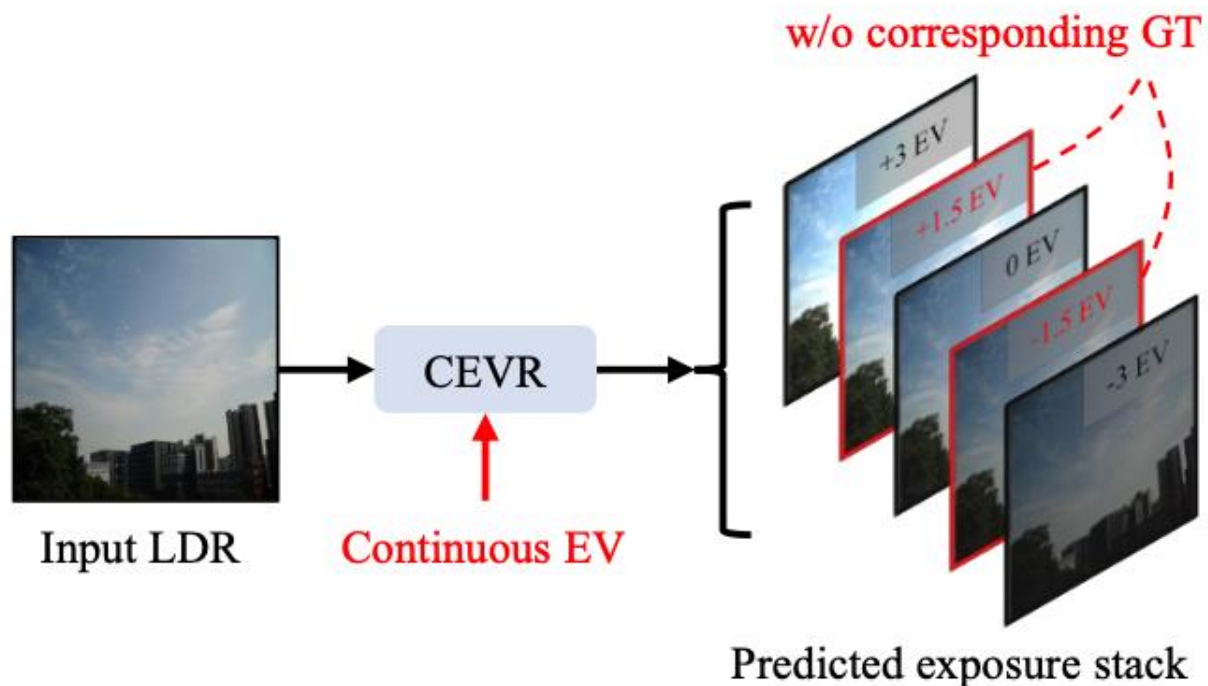
Hou-Ning Hu<sup>2</sup> Wen-Hsiao Peng<sup>1</sup> Yen-Yu Lin<sup>1</sup>

<sup>1</sup>National Yang Ming Chiao Tung University   <sup>2</sup>MediaTek Inc.   <sup>3</sup>NVIDIA

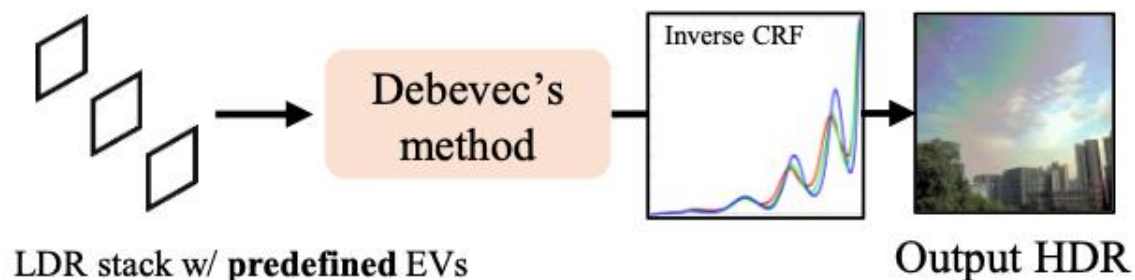
[https://skchen1993.github.io/CEVR\\_web/](https://skchen1993.github.io/CEVR_web/)

CVPR 2023

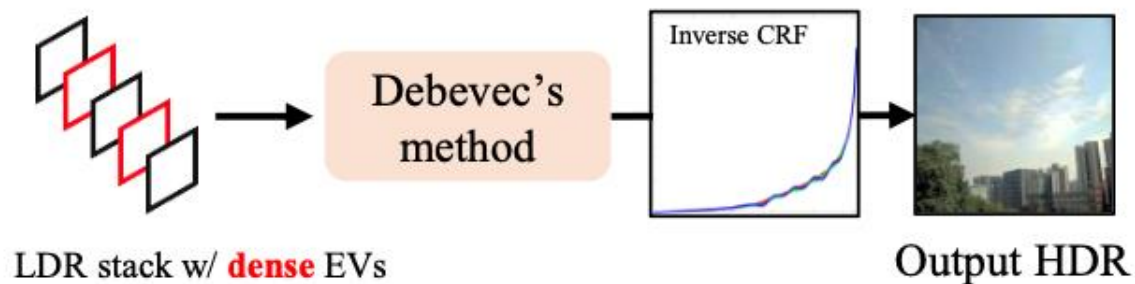
# Introduction



(a) Continuous exposure value representation (CEVR)

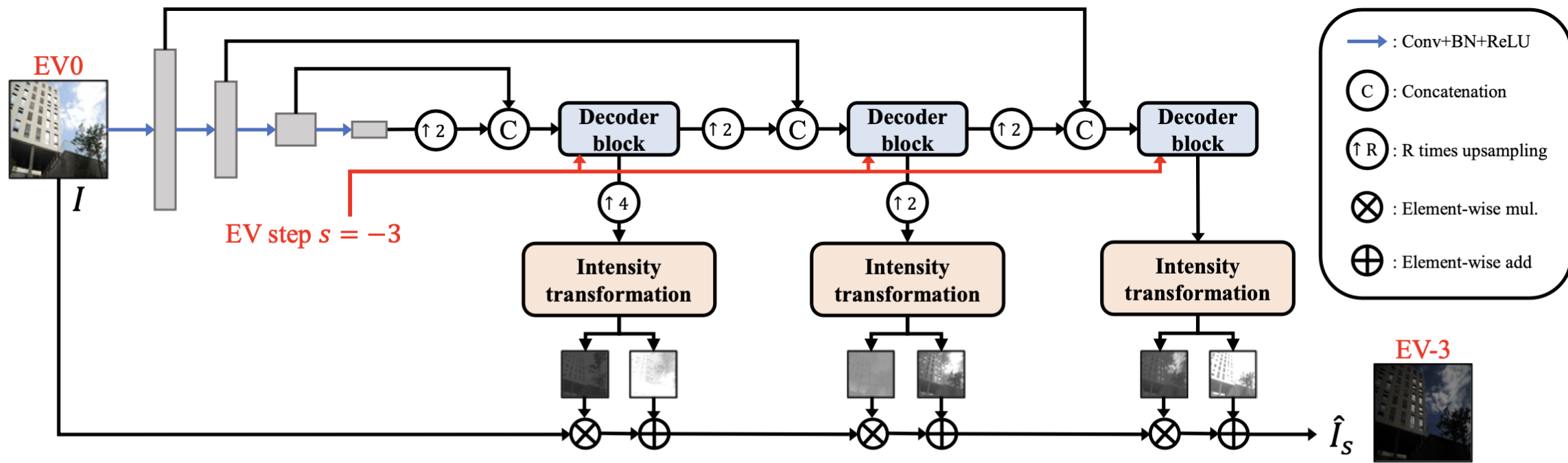


(b) Existing methods

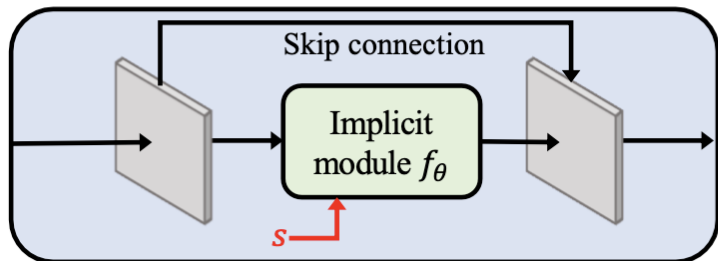


(c) Our continuous LDR stack benefits HDR reconstruction

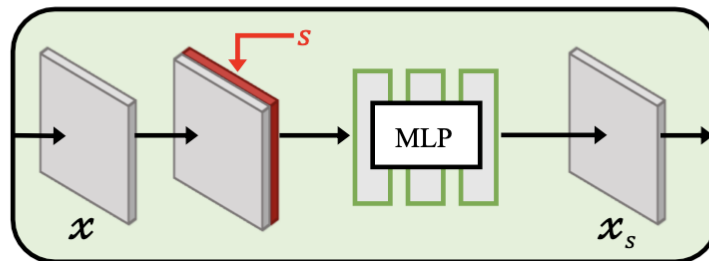
# Framework



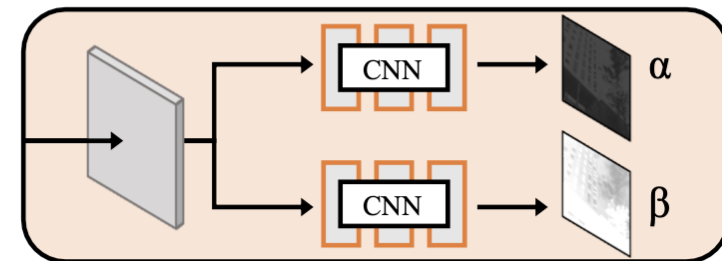
(a) CEVR network



(b) Decoder block

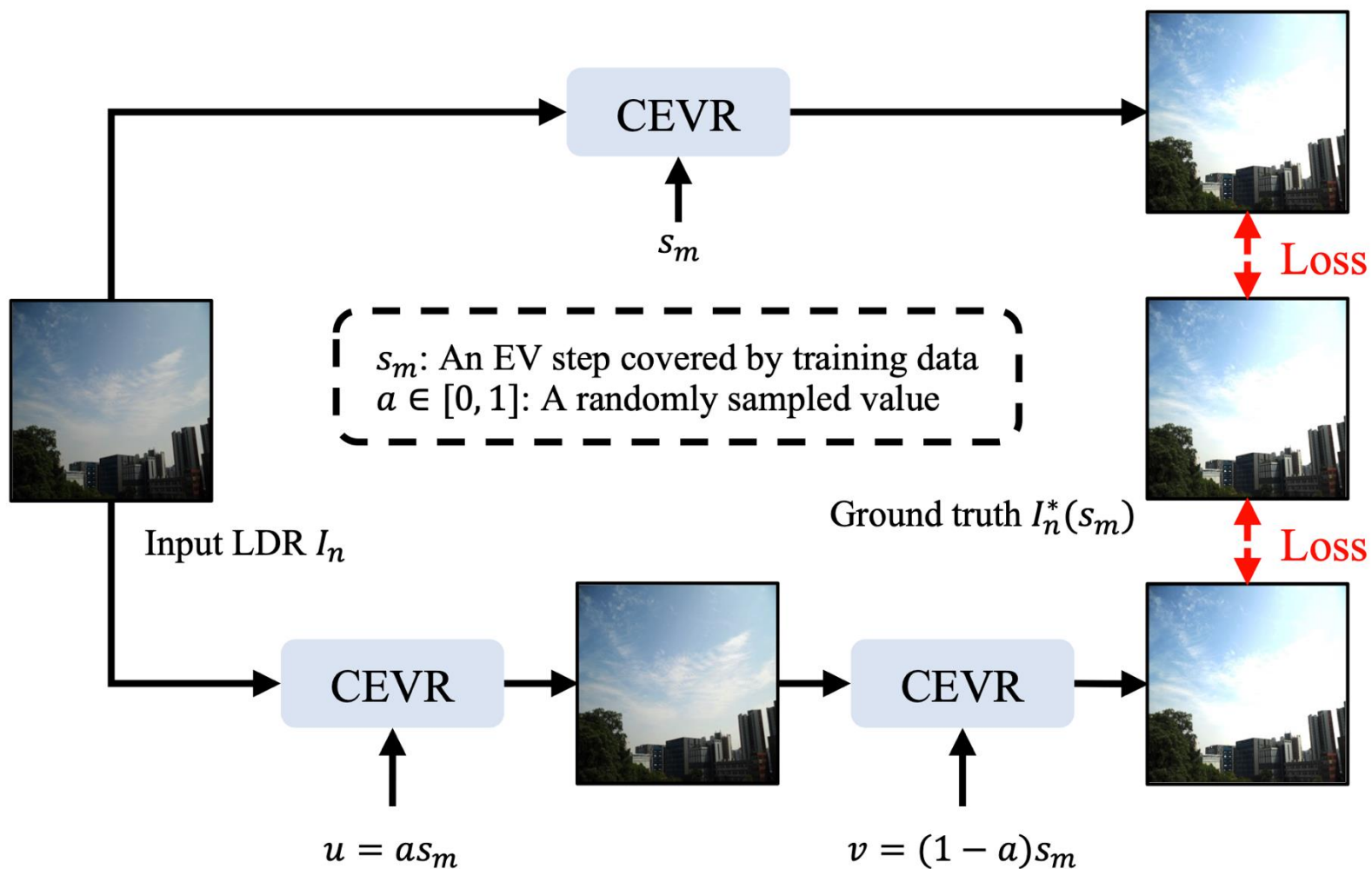


(c) Implicit module



(d) Intensity transformation

# Cycle training



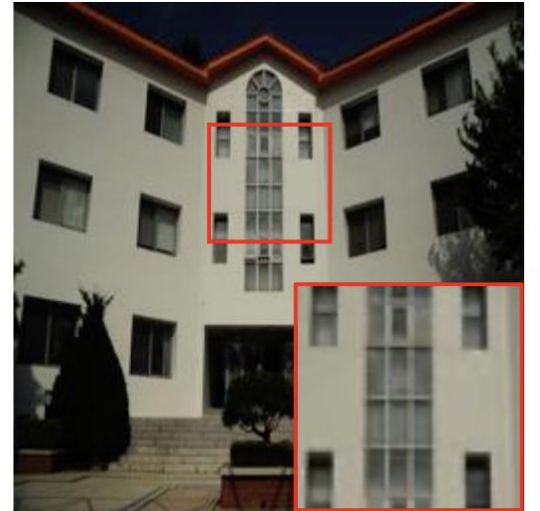


# Experiment

EV+3



EV-3



Input

Deep recursive

Ours

Ground truth

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# **Learning Continuous Image Representation with Local Implicit Image Function**

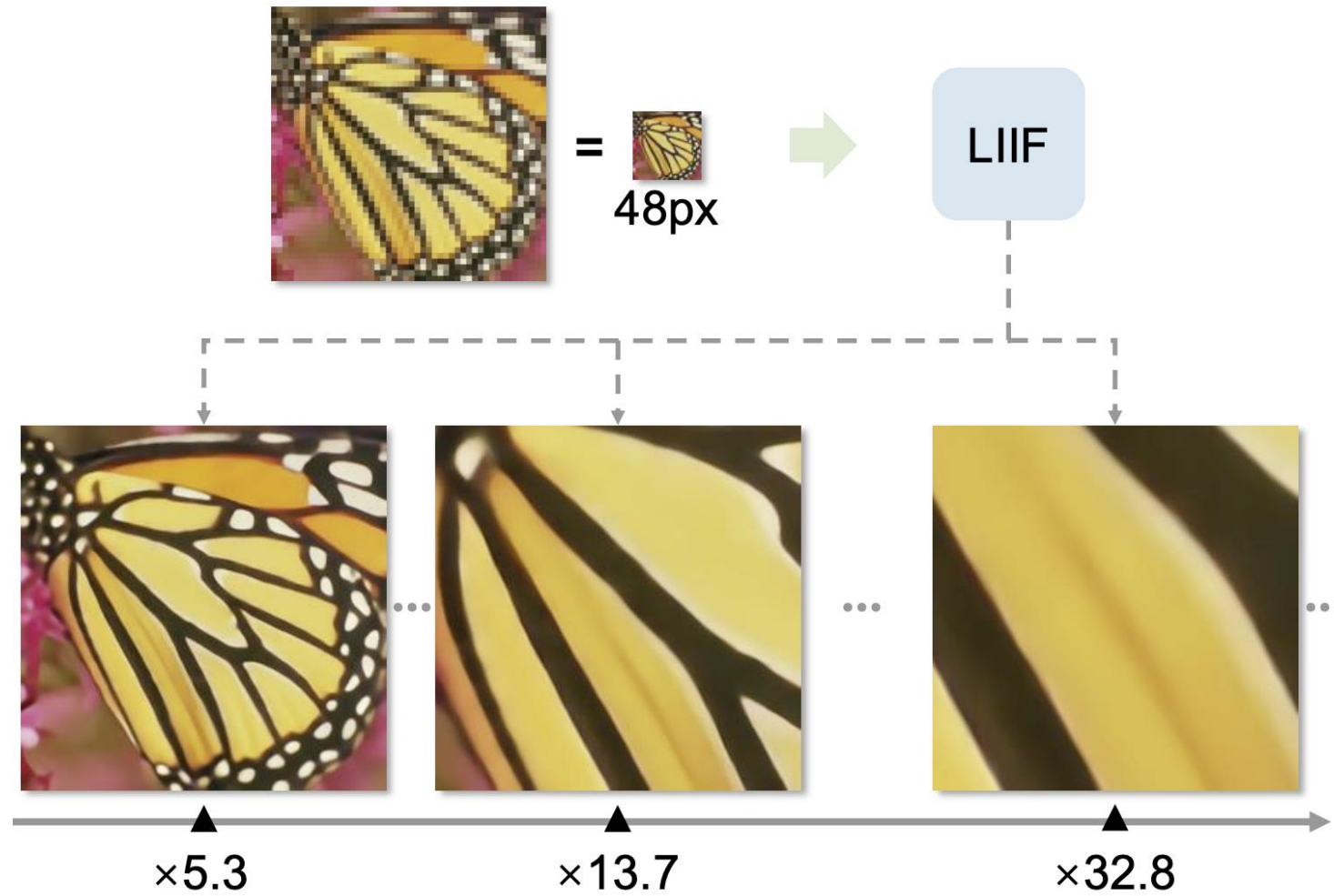
Yinbo Chen  
UC San Diego

Sifei Liu  
NVIDIA

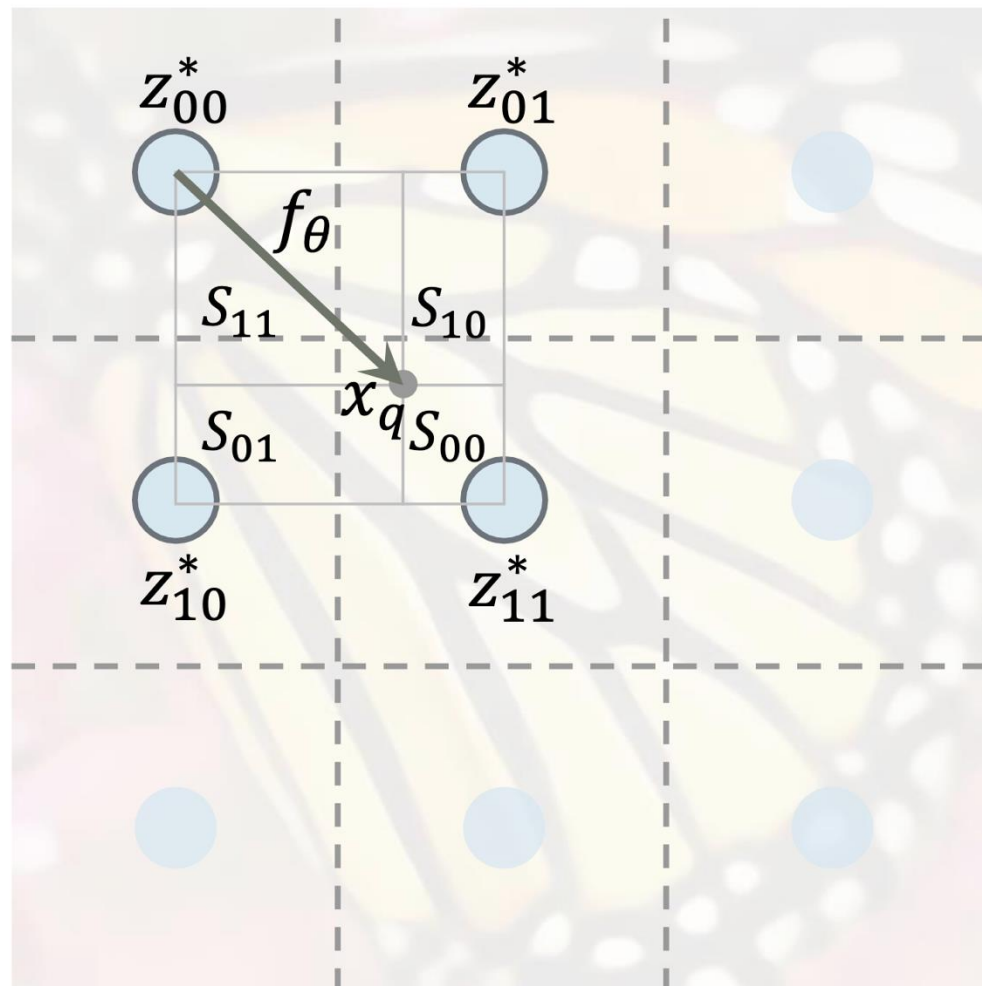
Xiaolong Wang  
UC San Diego

CVPR 2021

# Introduction



# Local ensemble

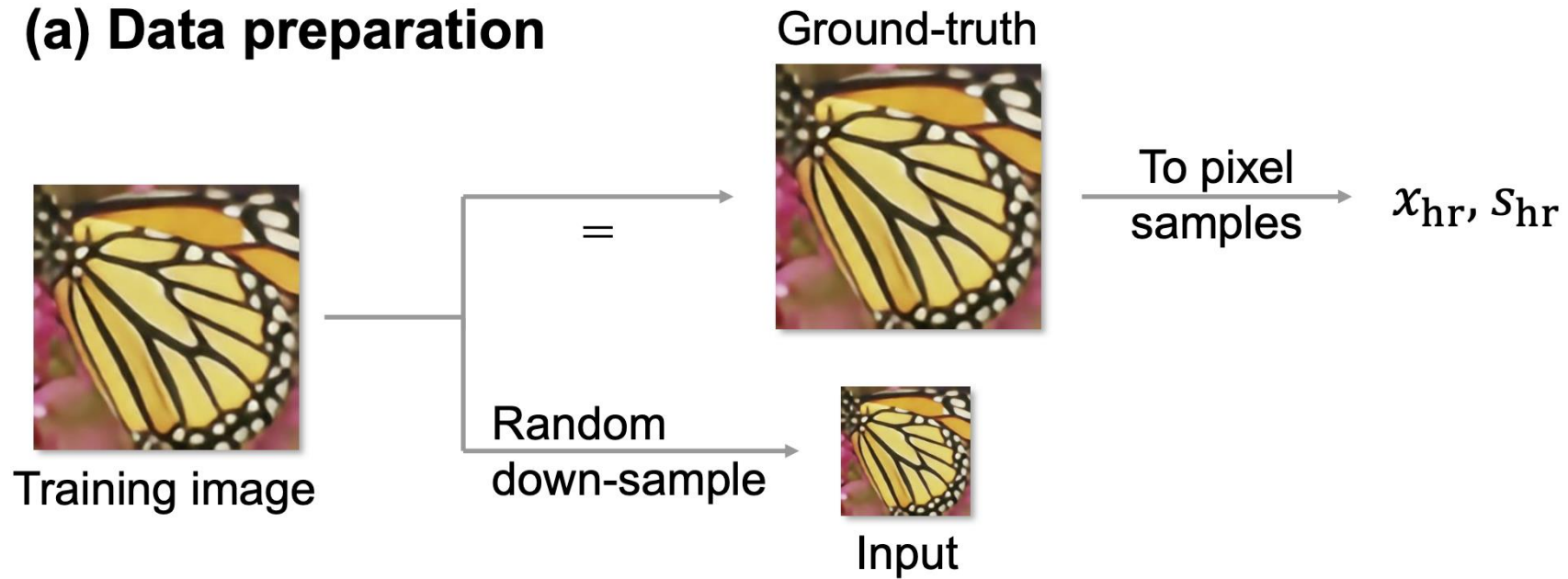


$$I^{(i)}(x_q) = \sum_{t \in \{00,01,10,11\}} \frac{S_t}{S} \cdot f_\theta(z_t^*, x_q - v_t^*),$$

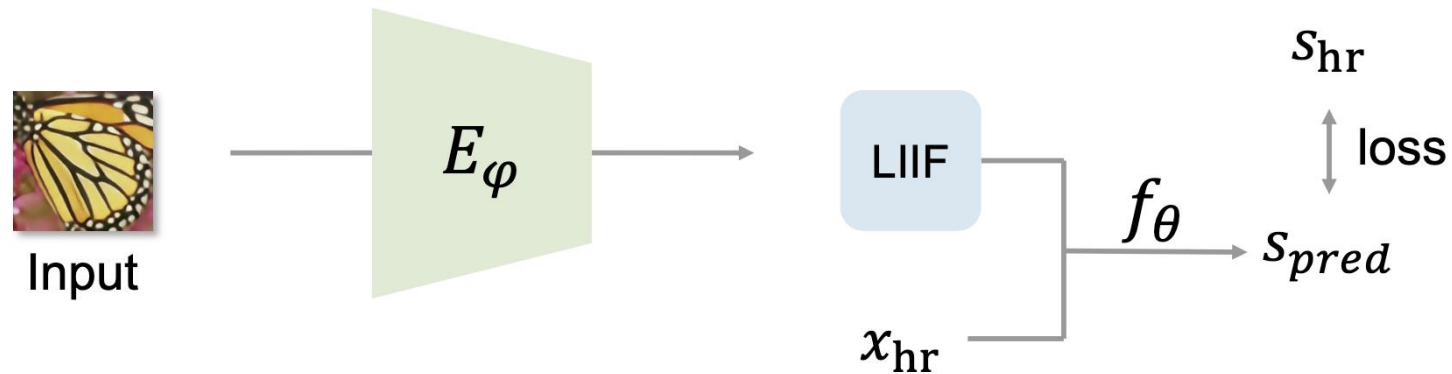


# Learning Continuous Image Representation

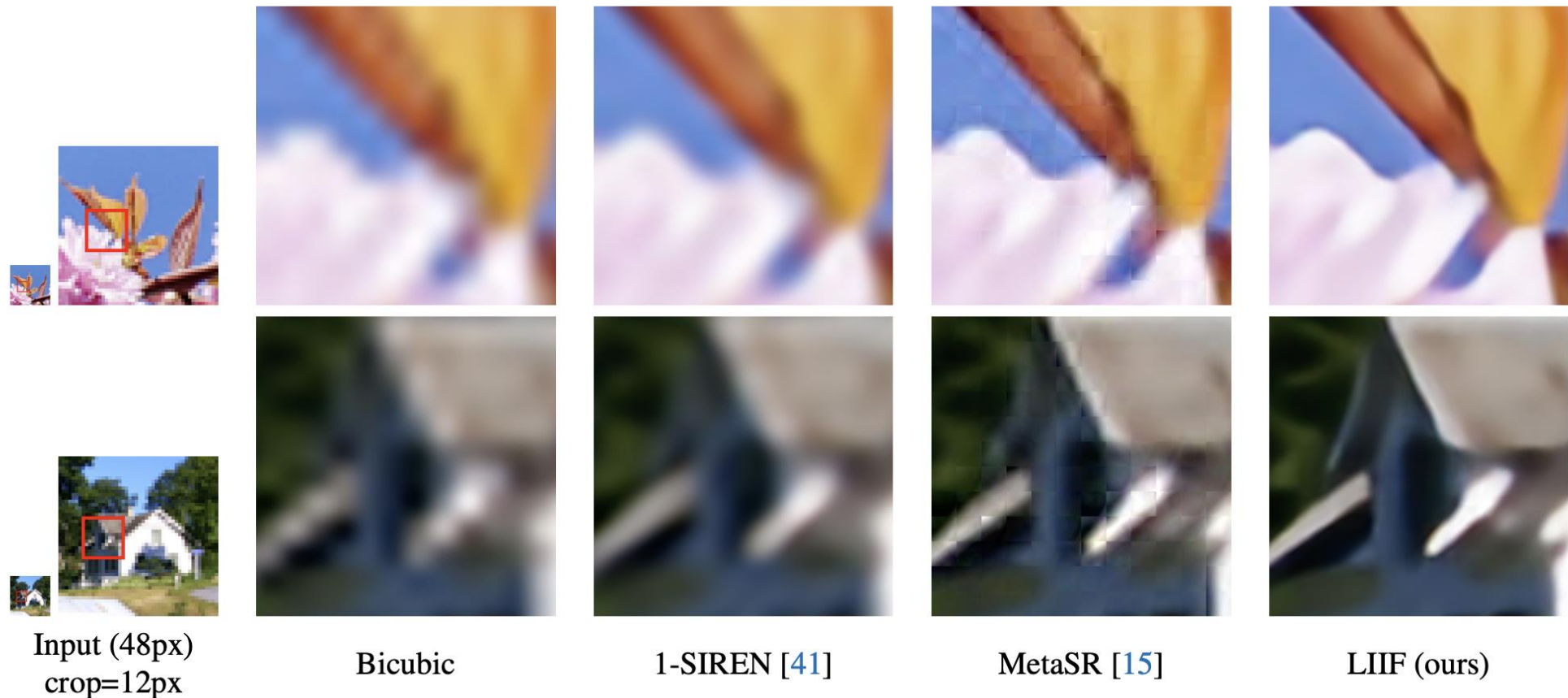
## (a) Data preparation



## (b) Training



# Experiment



- demonstration ( $\times 30$ )
- trained for  $\times 1$ – $\times 4$  and tested for  $\times 30$

Method	In-distribution			Out-of-distribution				
	$\times 2$	$\times 3$	$\times 4$	$\times 6$	$\times 12$	$\times 18$	$\times 24$	$\times 30$
Bicubic [24]	31.01	28.22	26.66	24.82	22.27	21.00	20.19	19.59
EDSR-baseline [24]	34.55	30.90	28.94	-	-	-	-	-
EDSR-baseline-MetaSR <sup>#</sup> [15]	34.64	30.93	28.92	26.61	23.55	22.03	21.06	20.37
EDSR-baseline-LIIF (ours)	34.67	30.96	<b>29.00</b>	<b>26.75</b>	<b>23.71</b>	<b>22.17</b>	<b>21.18</b>	<b>20.48</b>
RDN-MetaSR <sup>#</sup> [15]	35.00	31.27	29.25	26.88	23.73	22.18	21.17	20.47
RDN-LIIF (ours)	34.99	31.26	29.27	<b>26.99</b>	<b>23.89</b>	<b>22.34</b>	<b>21.31</b>	<b>20.59</b>