

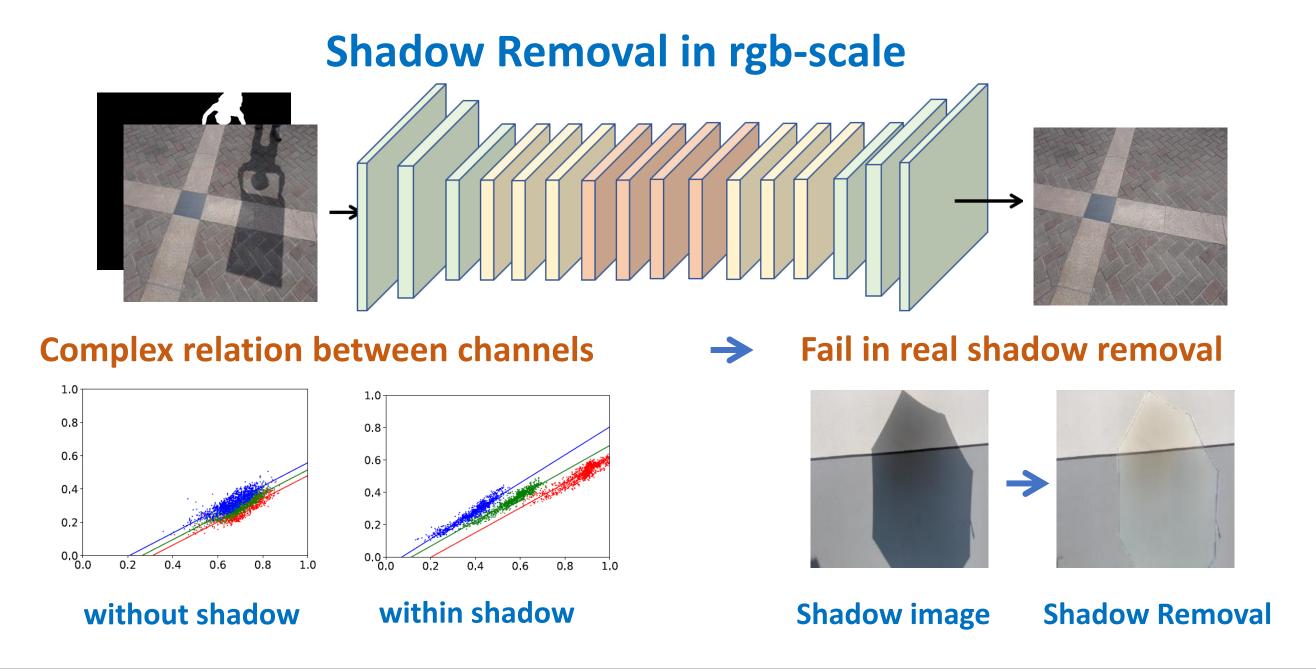
# Towards Real-world Shadow Removal with a Shadow Simulation Method and a Two-stage Framework



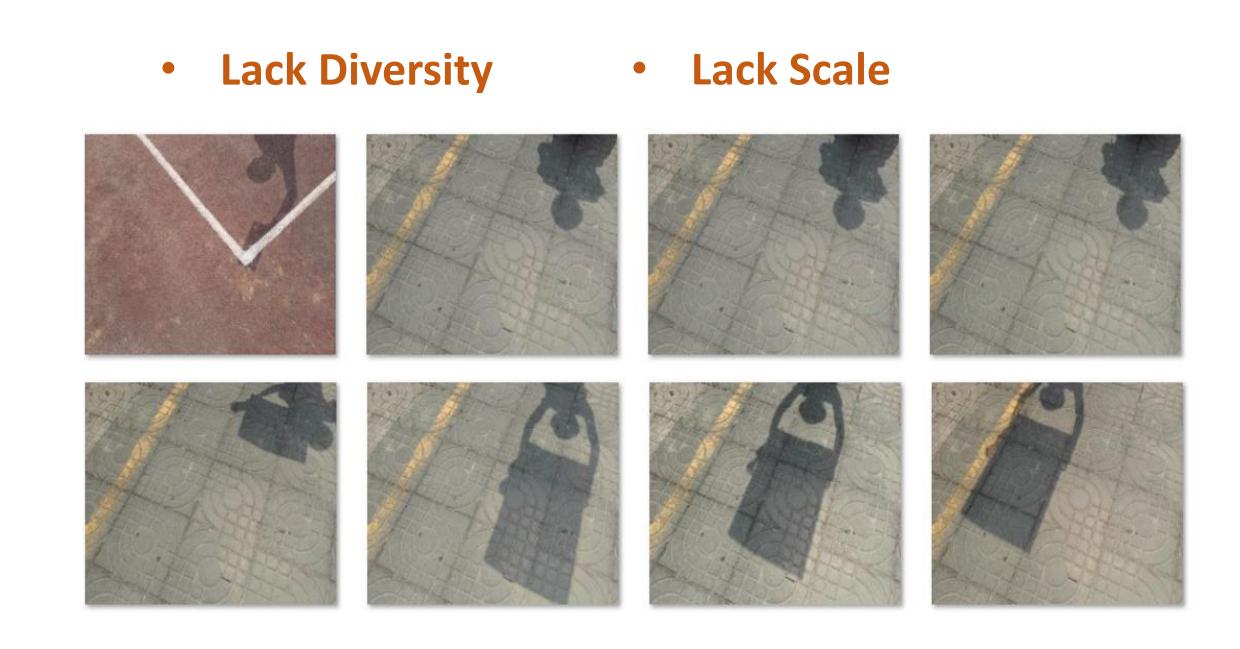
Jianhao Gao, Quanlong Zheng, Yandong Guo

# Introduction

### **Previous Methods for Shadow Removal**



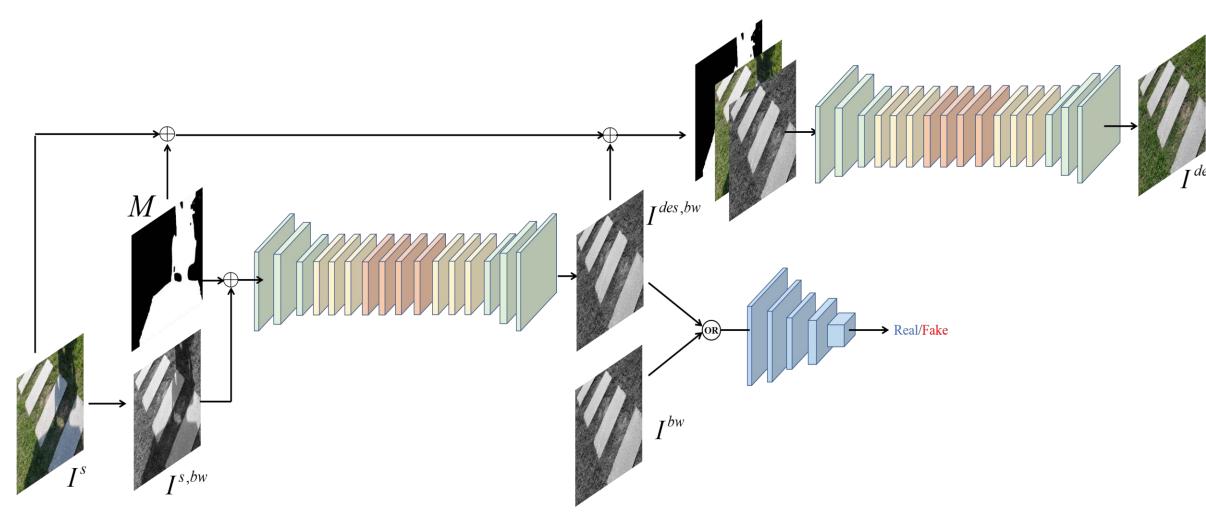
## **Existing Datasets for Shadow Removal**



# Method

## Decouple Shadow Removal into two stages

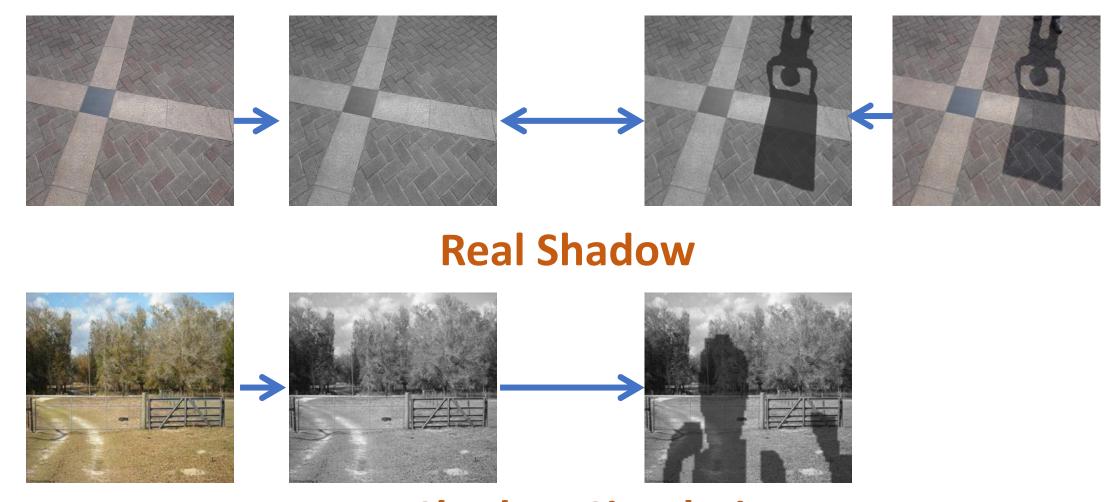




**Shadow Removal on Grey-scale** 

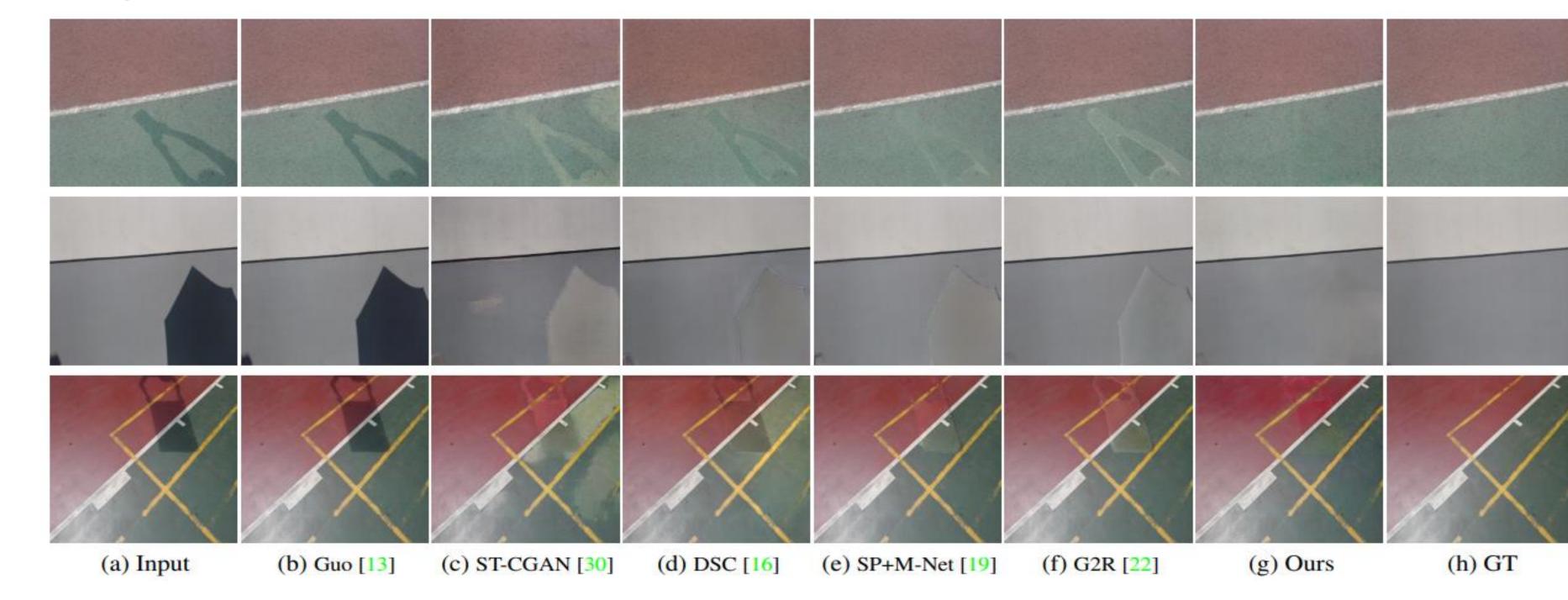
## **Enlarge Datasets by Simulating Shadows**

#### Approximately linear in grey-scale

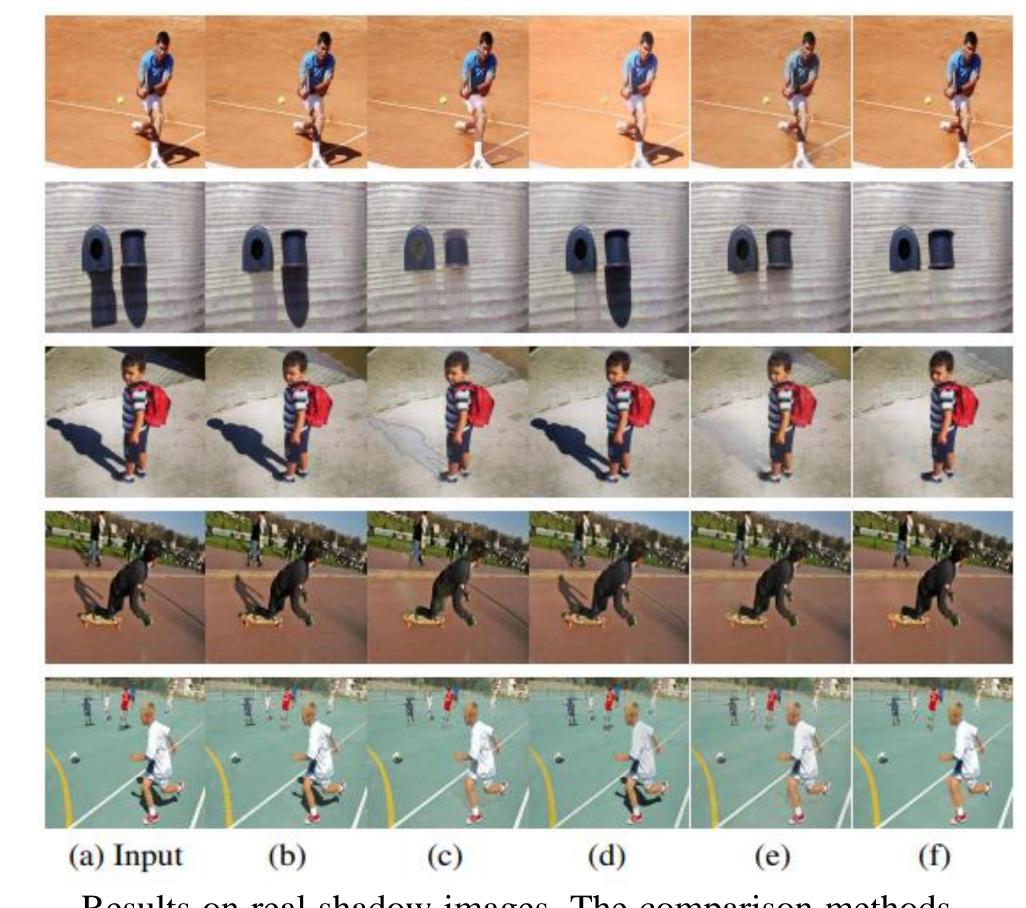


#### **Shadow Simulation**

# Experiment



Results on ISTD+ dataset. The models are trained strictly with ISTD.



Results on real shadow images. The comparison methods are trained on ISTD+ dataset. From (b) to (f) are respectively SP+M-Net, DHAN and G2R.

Method	S	NS	All
Yang	24.7	14.3	15.9
Guo	22.0	3.1	6.1
ST-CGAN	13.4	7.9	8.6
SP+M-Net	7.9	3.1	3.9
DSC	9.2	6.3	6.6
AEF	6.5	3.8	4.2
Ours	6.4	2.9	3.5
Method	C	NC	A 11

Method	S	NS	All
Ours*	6.4	2.9	3.5
MaskSGAN	10.8	3.8	4.8
LGSN	9.8	3.4	4.4
Le et.al	9.7	3.0	4.0
G2R	8.8	3.6	4.5
Ours	8.6	3.2	4.2