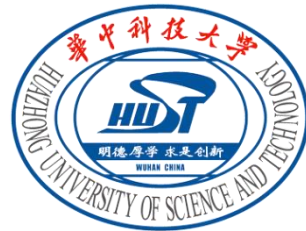


TransLight: Image-Guided Customized Lighting Control with Generative Decoupling

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New task: Light Effect Transfer

Target Scenarios

Users wish to enhance the visual quality of a captured portrait by incorporating striking light effects. After retrieving a satisfactory reference image, users employ our TransLight to transfer and replicate the light effect from the template onto their own photograph.



You get a decent selfie

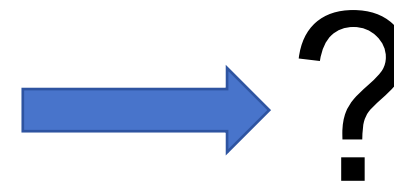
How can I make it more impressive?



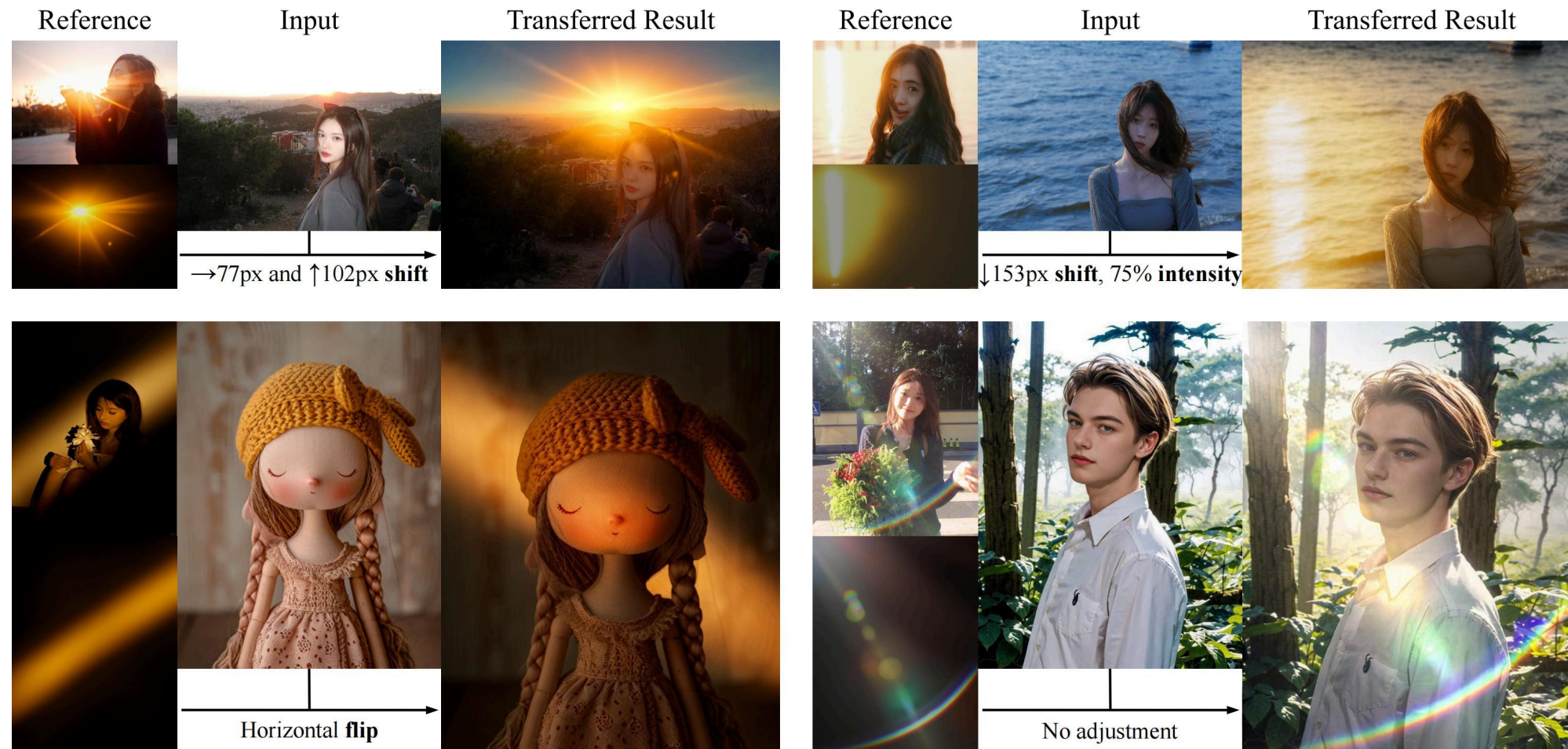
You think



You find a satisfying template online

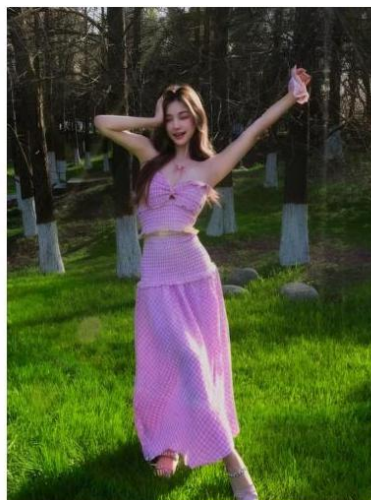


Our TransLight Can Achieve This



We extract the light effect from the reference image and composite it onto the target image, enabling flexible control over position and direction for realistic, high-freedom results.

Generative Decoupling



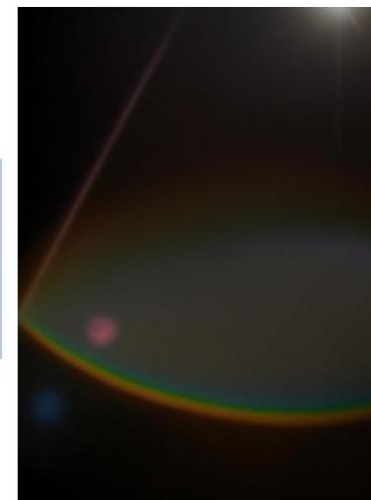
I

Light
Removal



I_L

Light
Extraction



L

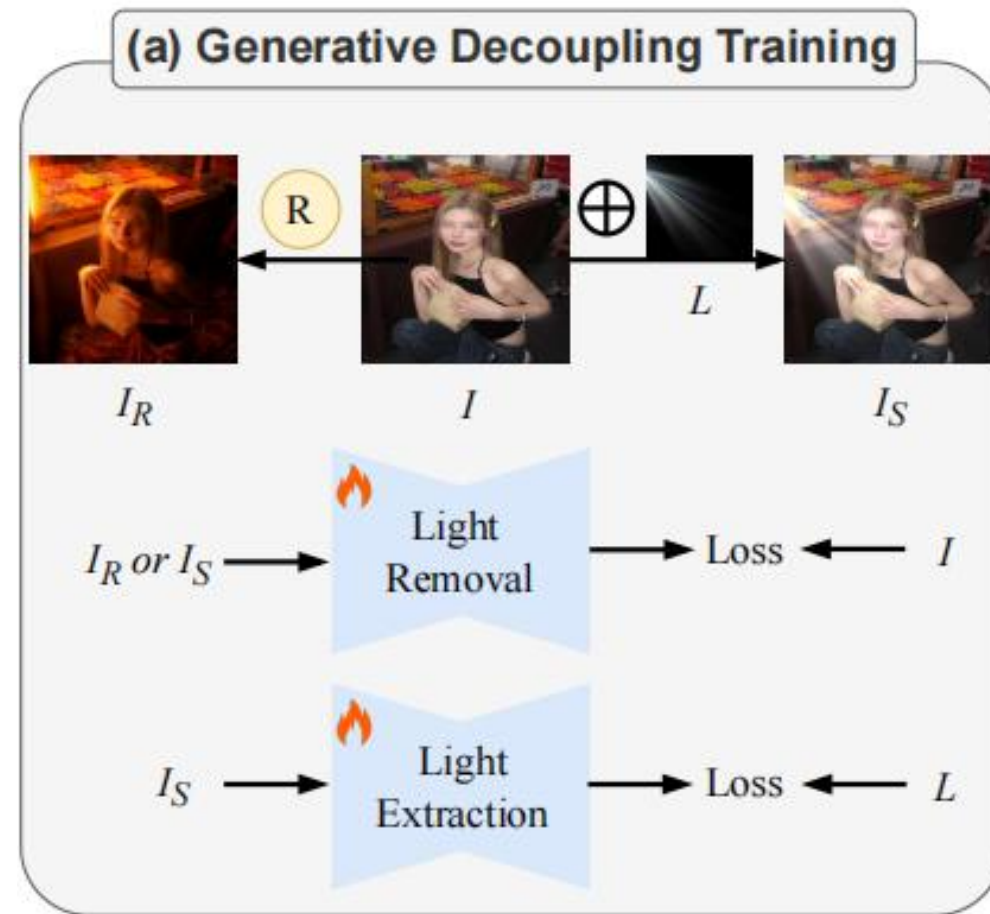
Decouple content and light effects by two diffusion models

Generative Decoupling Training

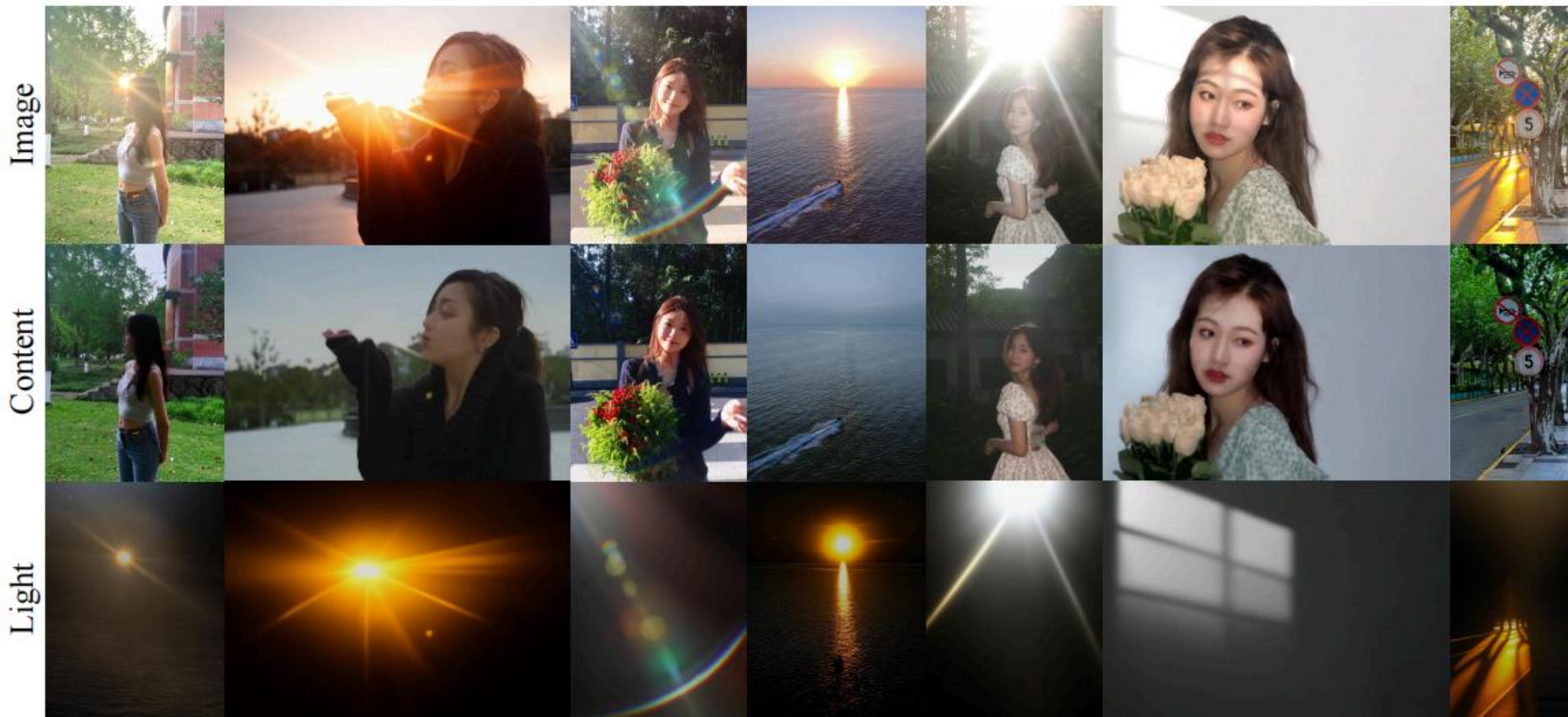
We fine-tune two diffusion models initialized with the weights of IC-Light.

The input synthesized image I_S is the direct addition result of no light image I and light material image L

The input image I_R is the relighted result of no light image I using some relighting methods



Visualizations of Generative Decoupling



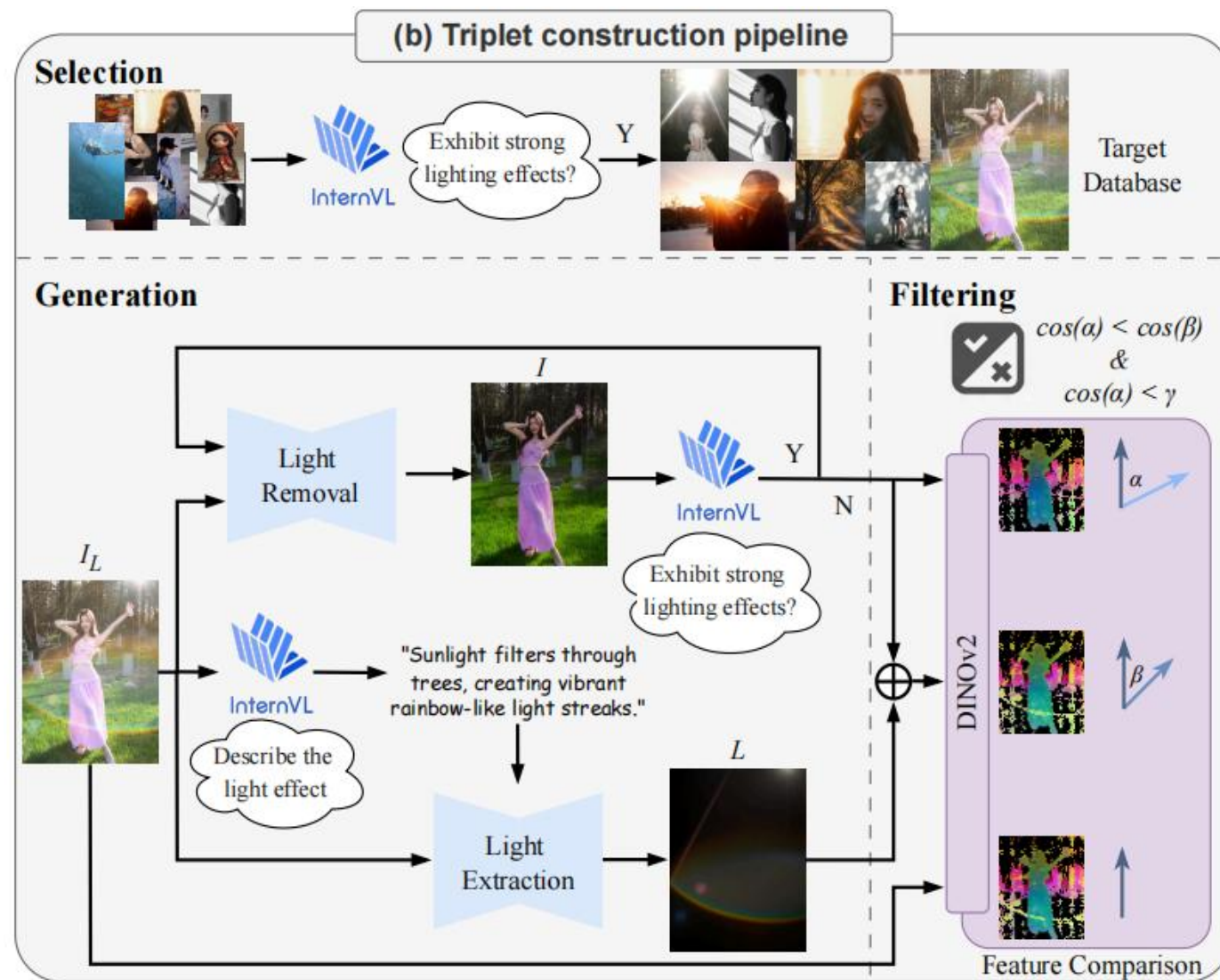
Our light removal model can eliminate light effects from images while preserving the underlying content unchanged as shown in the second line. Our light extraction model is capable of isolating the light effects from the image without introducing other extraneous objects.

Triplet Construction Pipeline

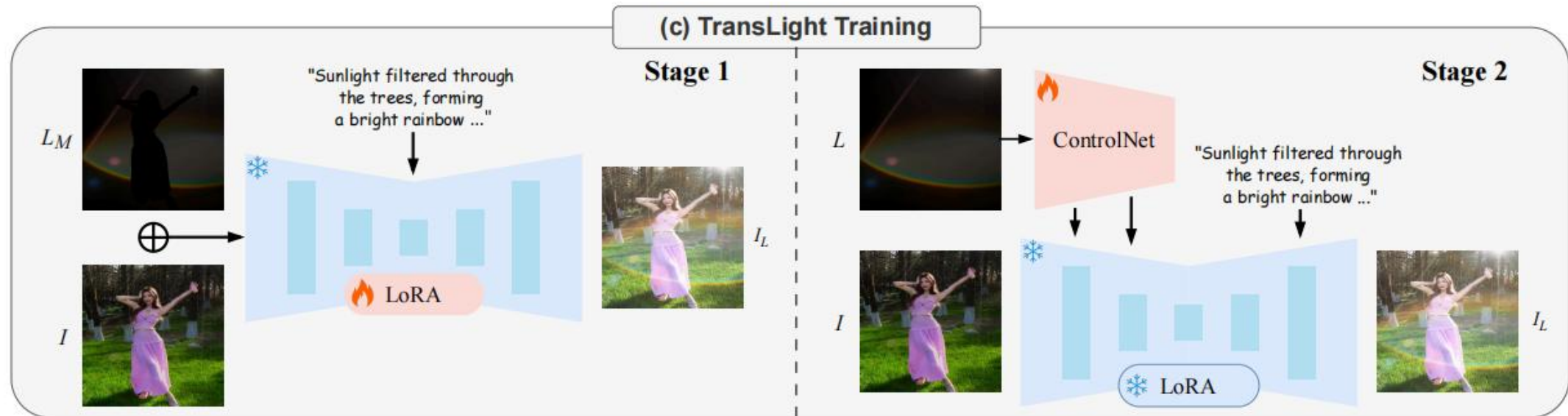
This pipeline involves:

- selecting relevant data using a vision language model
- decoupling image content and lighting via light removal and extraction models
- filtering out poor generation results.

We obtain over one million training samples



TransLight Training

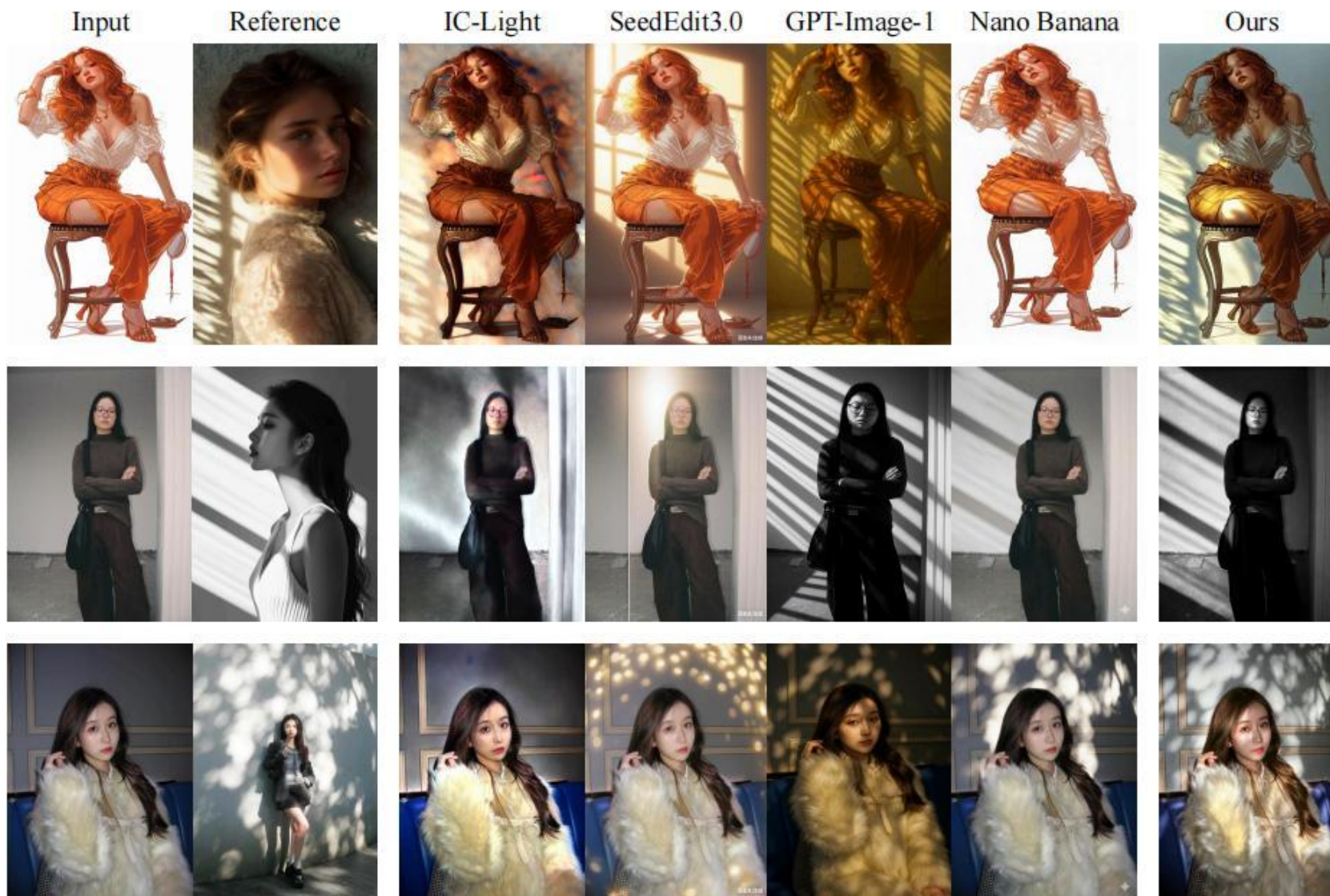


Our TransLight training consists of two stages: LoRA fine-tuning for content-preserving lighting editing and ControlNet training to inject light effects

Performance of our TransLight



ICML
International Conference
On Machine Learning



Better content and light consistency

Performance of our TransLight

User Study

METHOD	CONSISTENCY PASS RATE	
	LIGHT	CONTENT
IC-LIGHT (PROMPT)	4.0%	12.0%
IC-LIGHT (BG)	8.4%	8.8%
NANO BANANA	39.5%	61.3%
SEEDREAM 4.0	32.4%	31.1%
OURS	84%	73.8%

Our TransLight significantly outperforms all competing methods in both light effect consistency and content consistency

Light-FID

METHOD	LIGHT-FID
CONTENT	10.61
CONTENT+LIGHT	8.40
IC-LIGHT	10.05
RELIGHTED DATA	7.72
UNFILTERED DATA	6.49
ONLY LoRA	7.94
ONLY CONTROLNET	8.44
LoRA+CONTROLNET (JOINT)	7.42
OURS	6.02

Our method demonstrates significant advantages over IC-Light

Conclusion



- We propose Generative Decoupling to decouple content and light in natural images using two diffusion models.
- We construct an image-content-light triplet generation pipeline based on our generative decoupling.
- We introduce TransLight, a novel image-guided method that allows accurate transfer of light effects with obvious geometric structure from a reference image to a target image in portrait photography scenes.

Thanks!



Paper: <https://arxiv.org/abs/2508.14814>

Project Page: <https://hustvl.github.io/TransLight/>

