

CroCoDiLight

Repurposing Cross-View Completion Encoders for Relighting

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The Challenge of Lighting

Lighting drastically changes how the same scene can look, making structural analysis difficult.



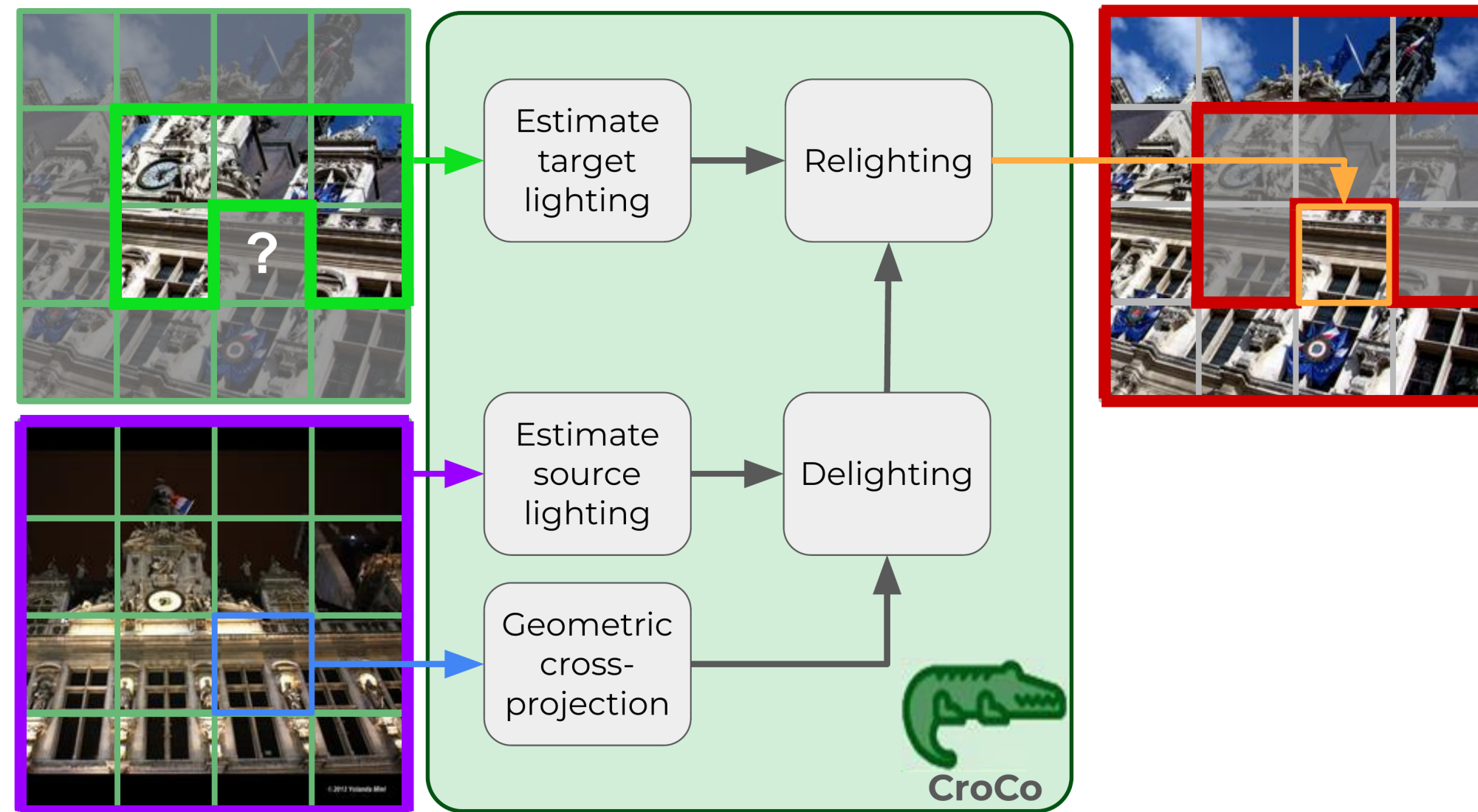
The Solution: CroCoDiLight

By applying good lighting to subsequent frames and keeping the intrinsics, we can stabilise the appearance.



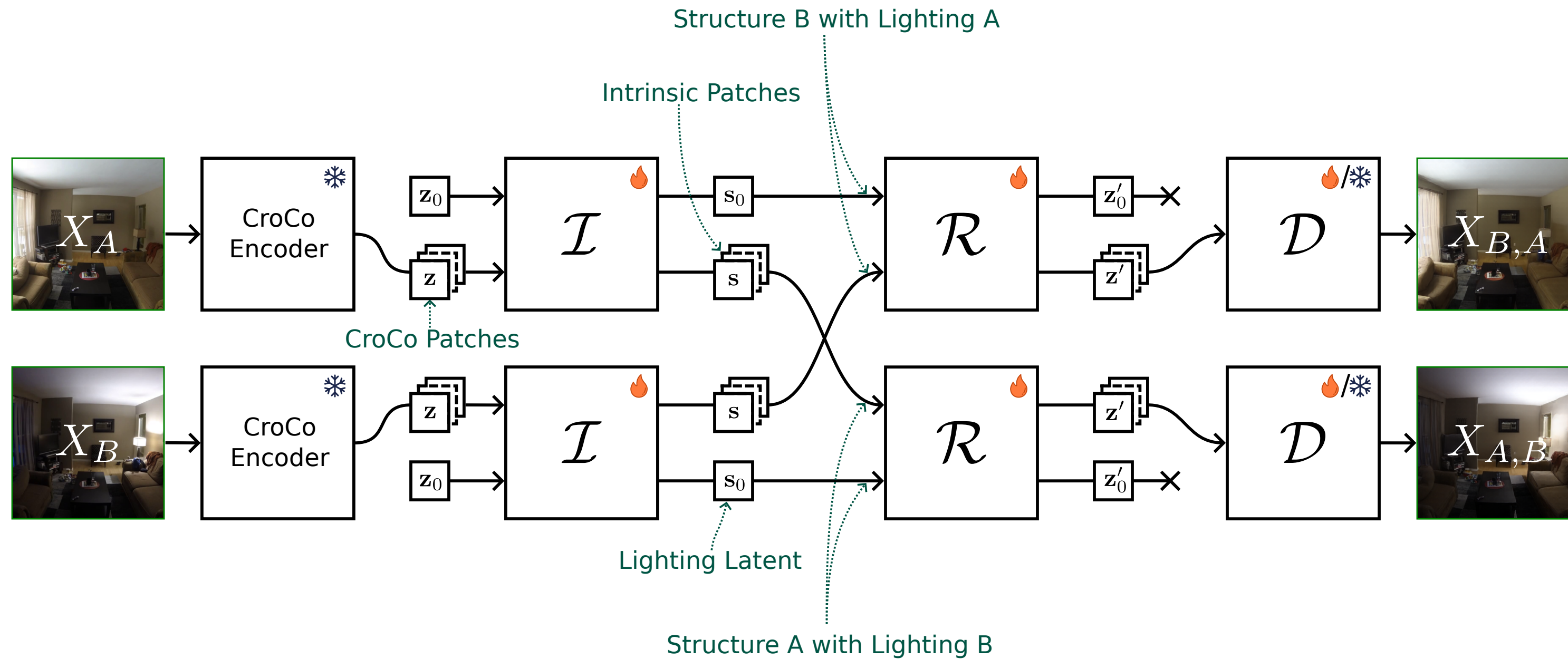
Hypothesis

The pretraining task of cross-view completion must inherently embed and understand lighting and intrinsic information in latent space.



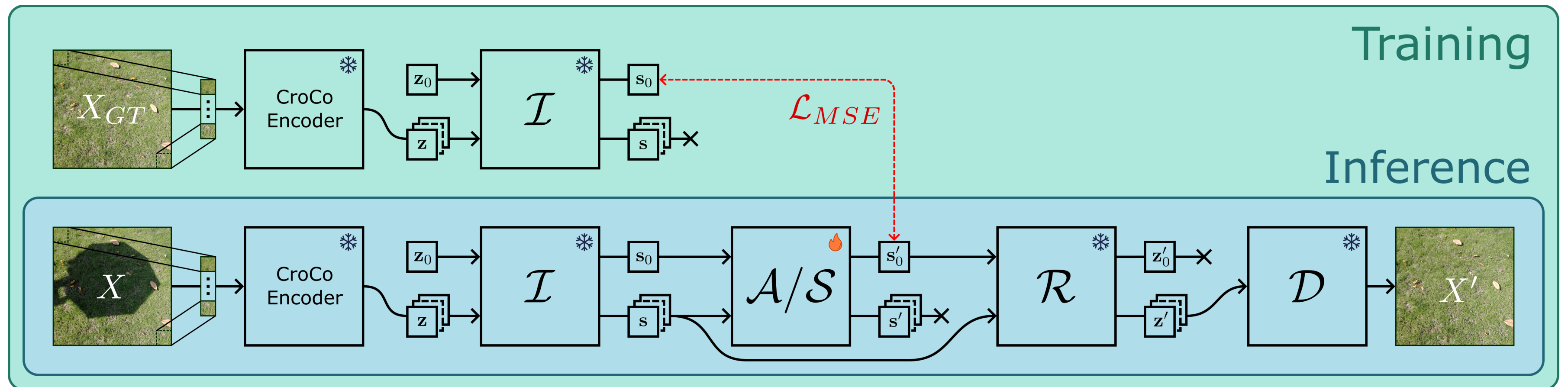
Method

To extract this lighting understanding, we train the model to swap the lighting between pairs of pixel-aligned images. Lighting is forced through a bottleneck and the intrinsics from both images are encouraged to be identical.



Task-Specific Modification

Given the newly learnt lighting latent space which will have shading and shadows embedded in it, we can manipulate the lighting latent for well-defined tasks. The tasks we demonstrate are albedo estimation and shadow removal, both of which our general model is capable of doing.



Albedo Estimation

INPUT

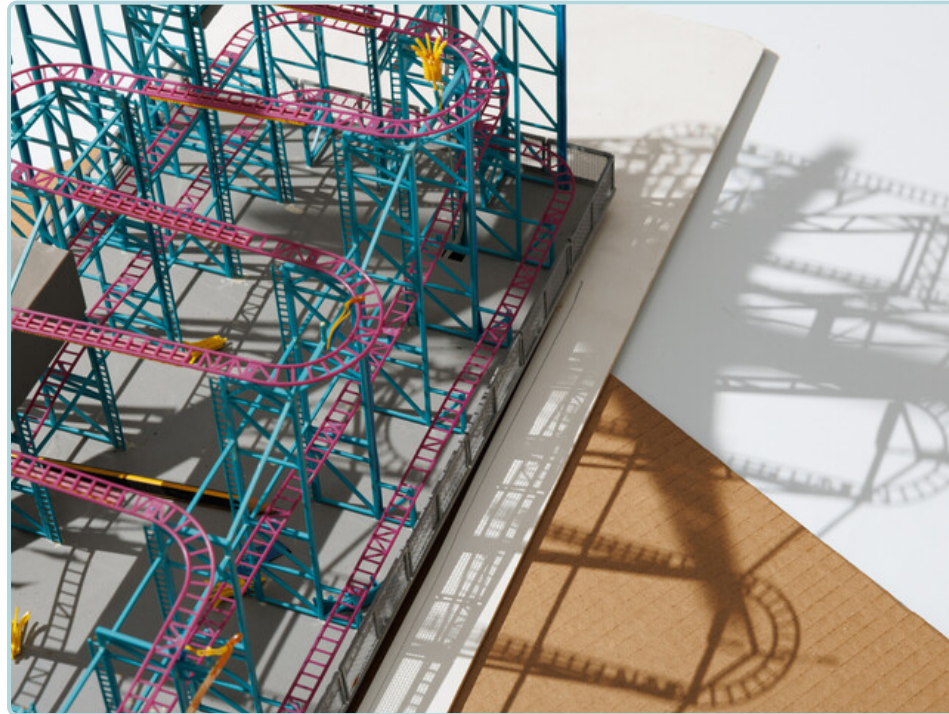


ALBEDO

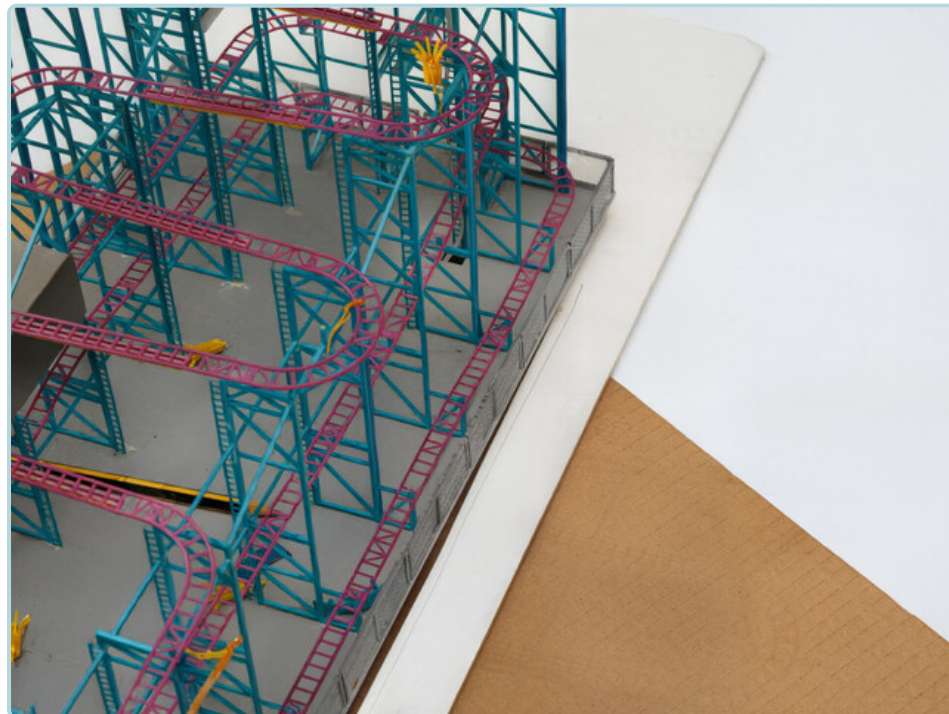


Shadow Removal

INPUT



SHADOW-FREE



Thank You!

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Project Page alistairfoggin.com/projects/crocodilight/

Paper openreview.net/forum?id=GKvb3HCyNk

Code github.com/alistairfoggin/CroCoDiLight

