ARIA
APPLIED RESEARCH IN ACTION

LUTFlow: Conditionally Bijective Implicit 3D Lookup Tables

Embed infinite photo styles in your pictures; if a style doesn't suit, simply roll it back or craft your very own!

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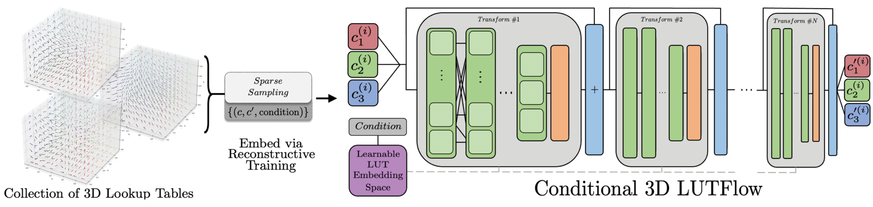

PROJECT SUMMARY

3D Lookup Tables (LUTs) are widely used in various stages of image processing pipelines to produce different picture styles. In this work, we introduce LUTFlow, a neural framework for implicitly representing and generating 3D LUTs. LUTFlow can accurately emulate over 500 LUTs simultaneously, a feat made possible by its continuous bijective neural architecture conditioned on a learned representation space for LUTs. This learned latent space not only allows for the blending of the original LUTs utilized during training but also gives the user the flexibility to devise entirely new LUTs from a select set of input-output color samples. LUTFlow's compact design makes it embeddable within JPEG metadata. Paired with its inherent bijective property, LUTFlow can ship infinite styles for each photograph, all while preserving the integrity of the original data.

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