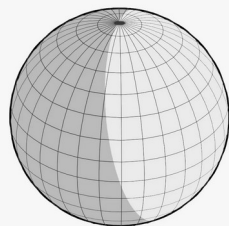


BLURD

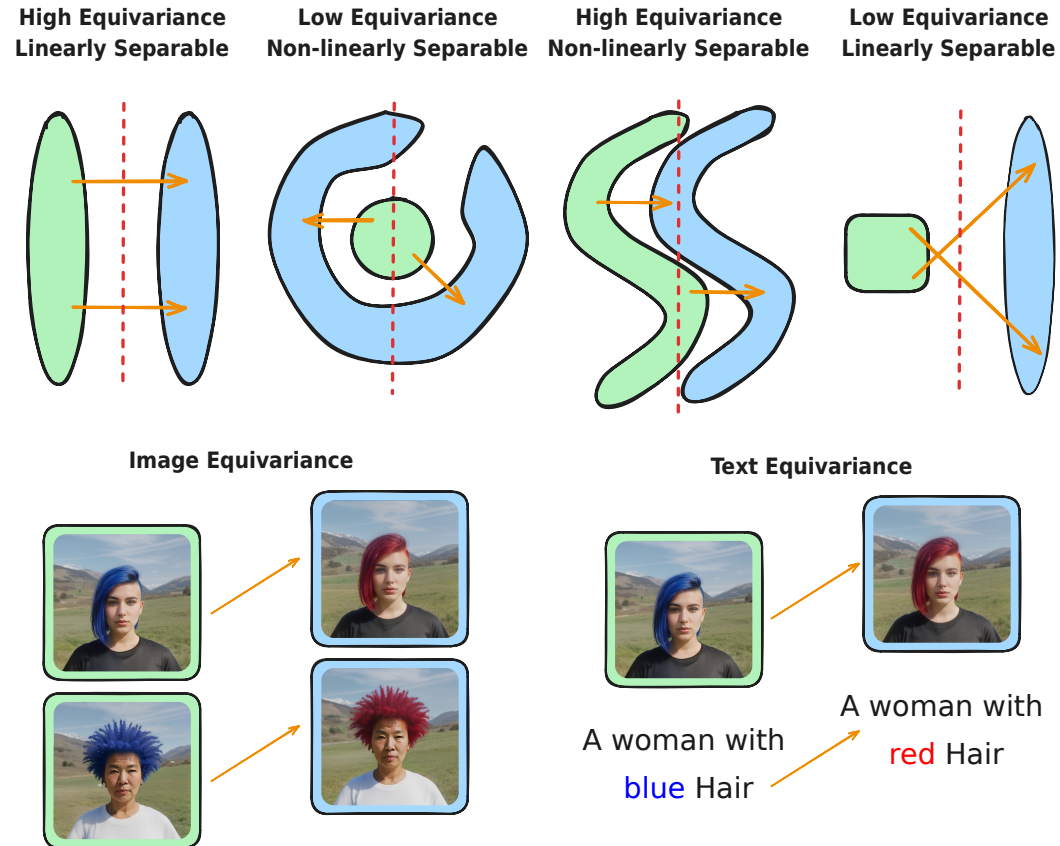
Benchmarking and Learning using a Unified Rendering and Diffusion Model

Boris Repasky • Ehsan Abbasnejad • Anthony Dick



Motivation

- Vision and language models and their training data contain biases and failure modes that are difficult to probe.
- Properties of the representation space such as disentanglement, equivalence and separability can help us understand these models.
- Datasets designed to investigate these properties require both control of the generating factors and scalability.
- Game engines are a popular method of generating such datasets, however there exists a realism gap.

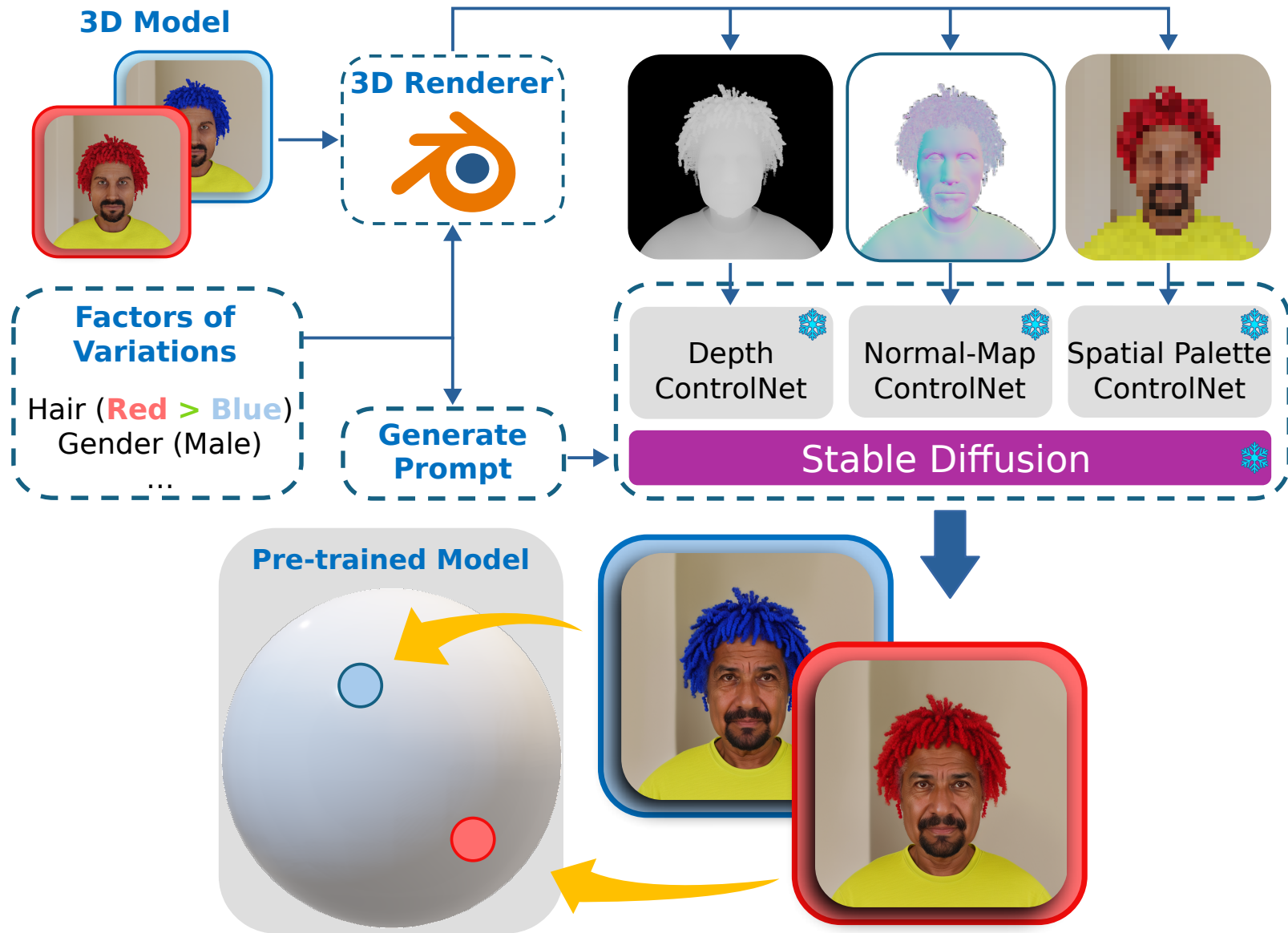


Contribution

- We introduce a novel dataset creation pipeline called BLURD.
- BLURD unifies deterministic 3D rendering with data-driven diffusion models.
- BLURD creates precisely controlled, photo-realistic and scalable datasets cheaply.
- Using BLURD we create a new family of datasets for evaluating and benchmarking vision and language models.

BLURD 3D, **BLURD SD** and **BLURD Mask**



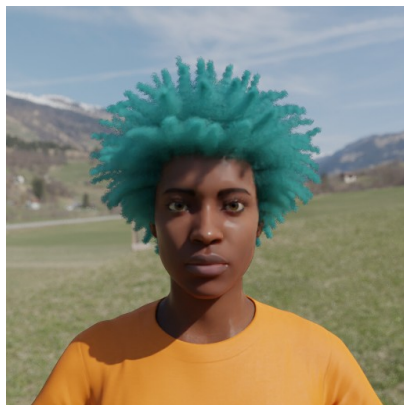


BLURD 3D

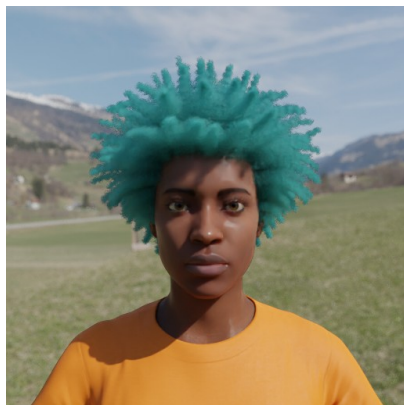
BLURD SD: Unleashed

BLURD SD: Tempered

BLURD SD: Harbinger



BLURD 3D



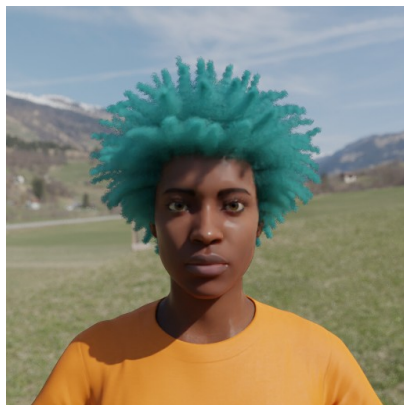
BLURD SD: Unleashed

BLURD SD: Tempered

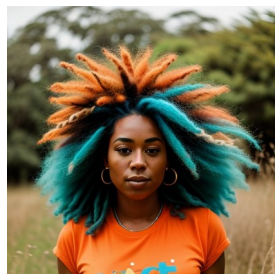
BLURD SD: Harbinger



BLURD 3D

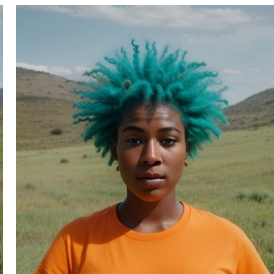
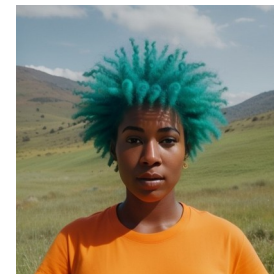
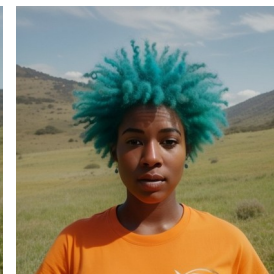
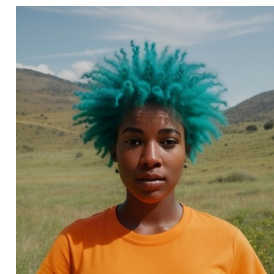
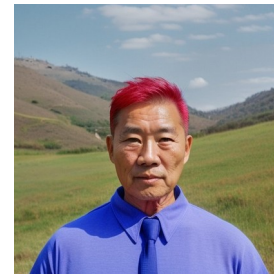
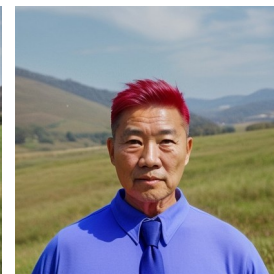
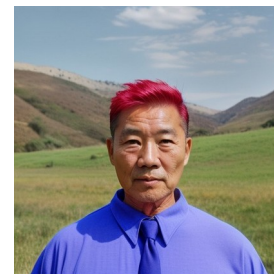


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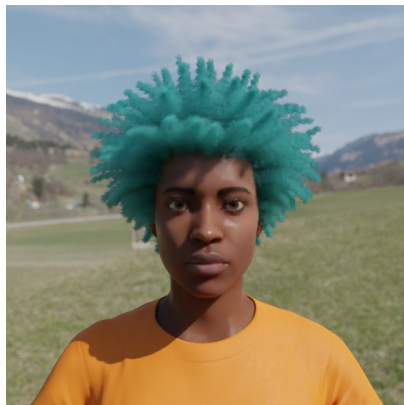


BLURD SD: Tempered

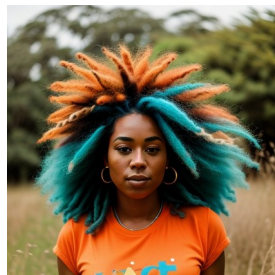
BLURD SD: Harbinger



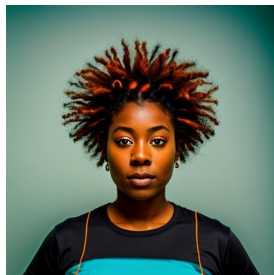
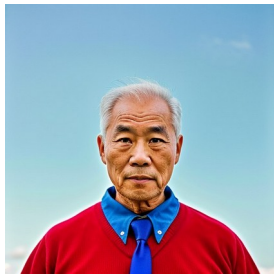
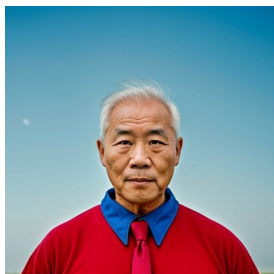
BLURD 3D



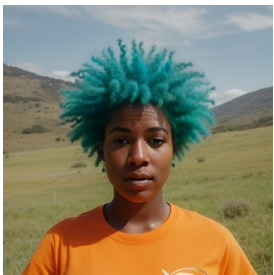
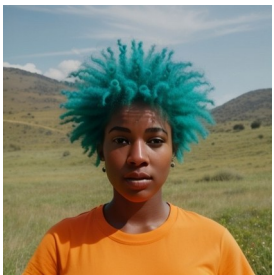
BLURD SD: Unleashed

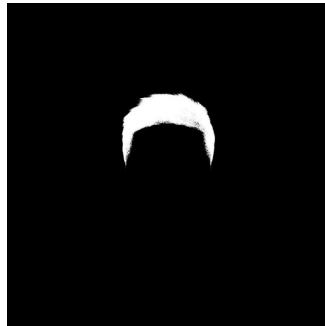
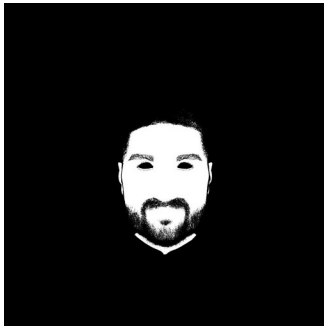
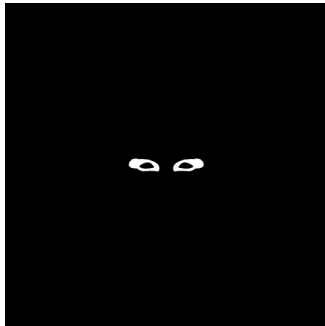
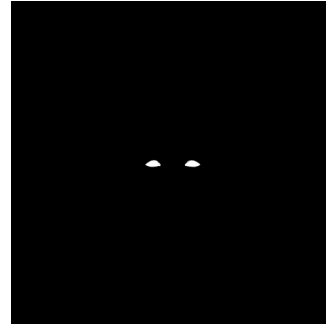
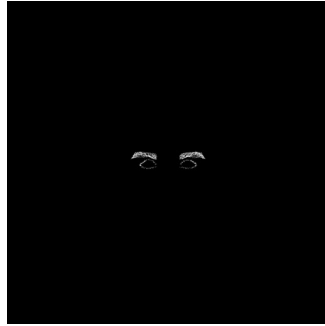
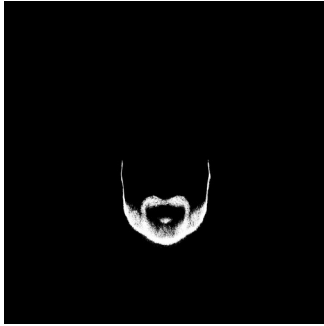


BLURD SD: Tempered



BLURD SD: Harbinger





BLURD MASK

CelebAMask-HQ



Thank you

Download the BLURD Datasets at
www.blurd.xyz