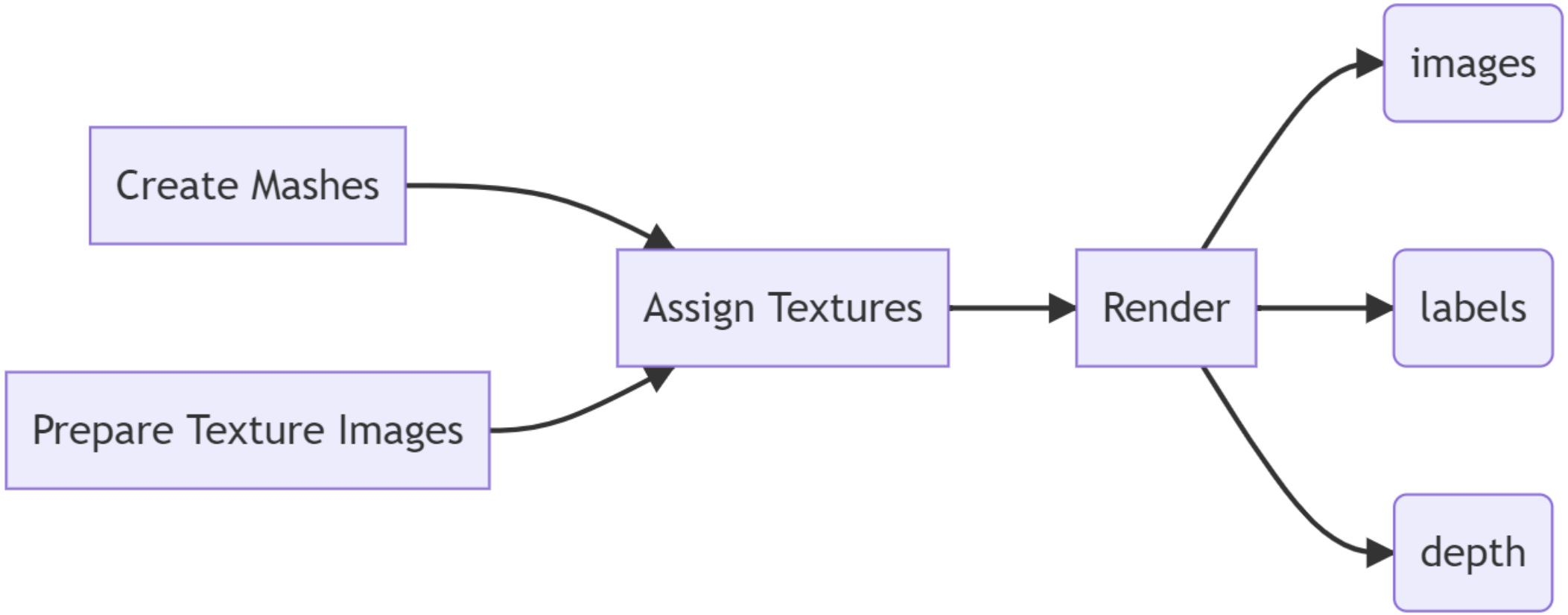
SRPP 2022 | Synthetic Structural Dataset

Speaker: *Wenhao Chai*

Synthetic Environments for Vision-based Structural Condition

Yasutaka Narazaki et al.

Overview


Create Mashes
Prepare Texture Images
Assign Textures
Render
images
labels
depth

- Tools: Blender; Blender-Python API
- **Limited**, **Fixed** and **Time consuming**.
- Another possible choice?

Kubric: A scalable dataset generator

Google

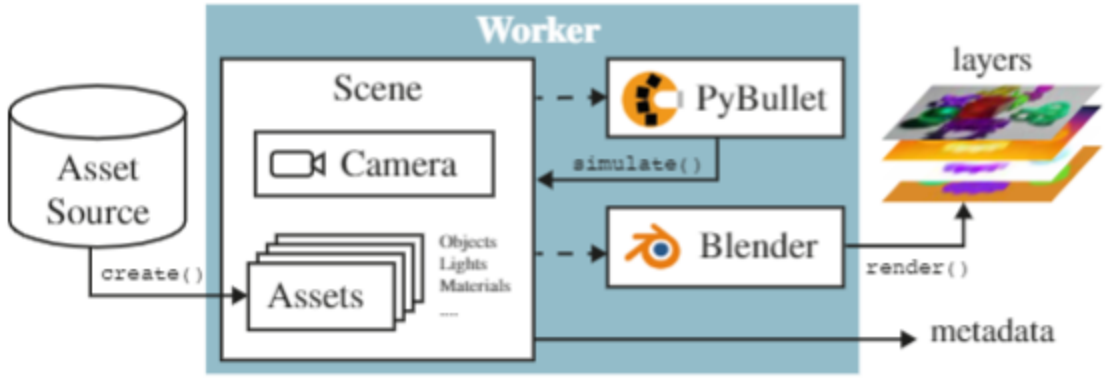


Figure 2. *Overview* – a typical Kubric worker randomly populates a scene with assets loaded from an external source, possibly runs a physics simulation, renders the resulting frames, and finally exports the images, annotation layers, and other metadata.

https://github.com/google-research/kubric

What can we do with the synthetic dataset?

- components semantic segmentation
- damage recognition
- structural localization and reconstruction

How to do?

- multimodal input
- multitask output

Some RGB-D Works in *CVPR2021 ICCV2021 ECCV2020*

1. Cross-Modal Weighting Network for RGB-D Salient Object Detection
2. Accurate RGB-D Salient Object Detection via Collaborative Learning
3. BBS-Net: RGB-D Salient Object Detection with a Bifurcated Backbone Strategy Network
4. Cascade Graph Neural Networks for RGB-D Salient Object Detection
5. Hierarchical Dynamic Filtering Network for RGB-D Salient Object Detection
6. A Single Stream Network for Robust and Real-time RGB-D Salient Object Detection
7. RGB-D Salient Object Detection with Cross-Modality Modulation and Selection
8. Progressively Guided Alternate Refinement Network for RGB-D Salient Object Detection