

1

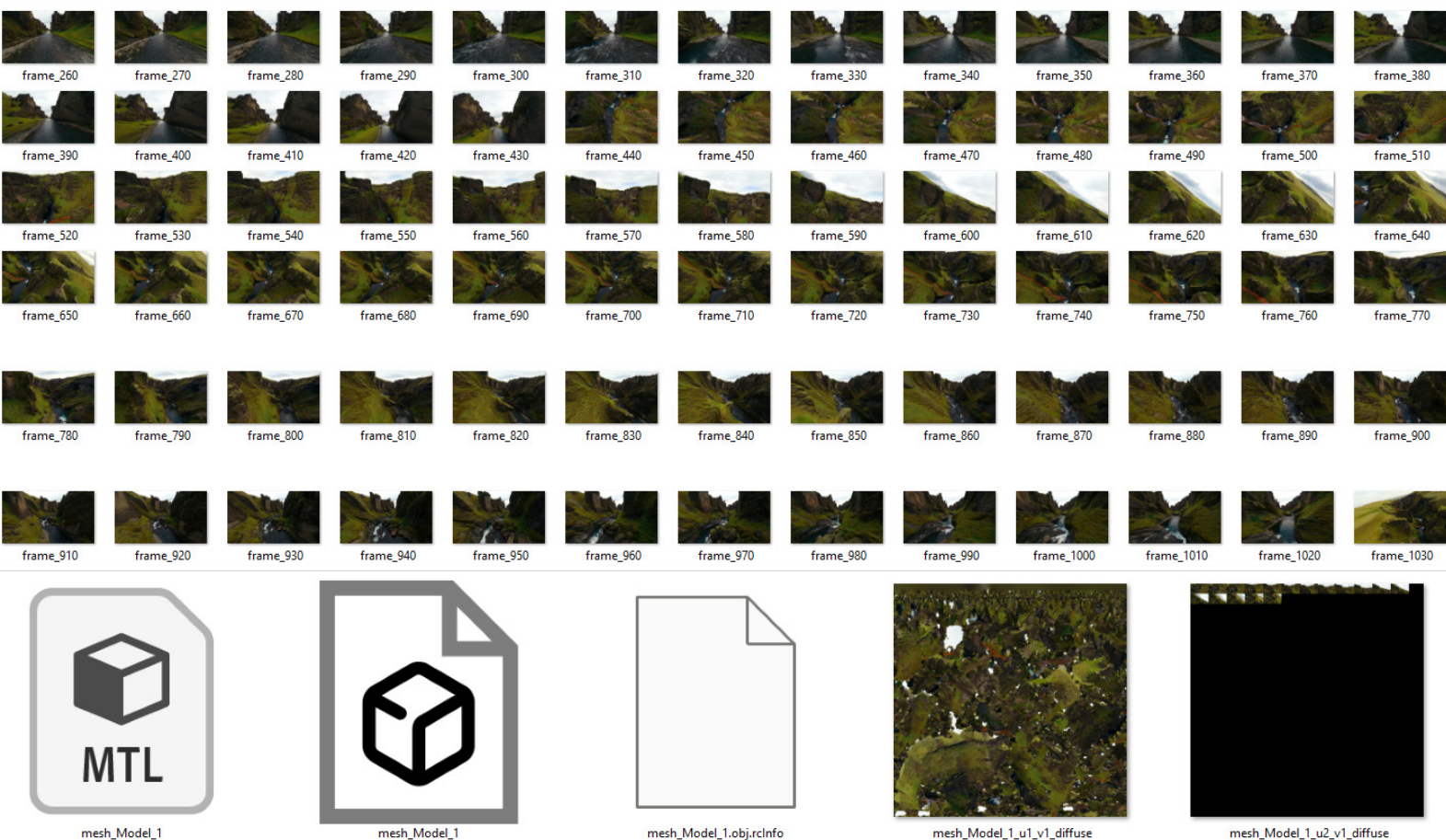
First, I downloaded a video clip and used Houdini’s “geometry” node to decompose it into a sequence of frames. Then, I utilized a third-party tool called CapturingReality to perform 3D reconstruction on the video, exporting an OBJ model, texture maps, and camera data.

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Next, I created a new scene file in Houdini and imported the geometry and camera data exported from CapturingReality using the “file” node. Since the model and camera data were merged, I used the “object merge” node to separate them into two different node trees.

I proceeded to reconstruct and optimize the camera path. I first used the “add” node to convert the camera position data into a set of points, then applied the “Sort” node to adjust the order of the points. To smoothen the camera motion path, I utilized the “Refine” node to interpolate and insert additional rotation and position keyframes between the existing keyframes.

At this stage, I could play back the scene on the timeline to review the video reconstruction achieved by the combination of AI and Houdini.





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Subsequently, I began adding additional attribute data to the model object in the scene. Using the “Attribute” node, I created two new point attributes for each point: volume and descriptive text. I read the relevant data from the previously parsed JSON file and assigned it to the newly created attributes using the VEX language. Through these steps, I successfully reconstructed the video scene in Houdini and added extra information to the objects within the scene. Building upon this, I can proceed with further visual effects compositing and rendering work.

