

This thesis investigates the possibility of using a representation neural network as a data structure for an appearance prediction model. We present the representation network as an adaptation of the popular neural radiance field network. The representation network is studied on 2D images as well as volumetric data. This thesis also evaluates the outputs of the appearance prediction network which uses the representation network.

Our analysis shows a decent quality of the representation network for 2D images and simple volumetric data. However, the outputs of the appearance prediction network are suboptimal.

We conclude that the representation network presented in this thesis should be improved and the appearance prediction model should be fine-tuned to the representation network as its input.