clouds are roughly on a 1 meter grid. The aerial imagery are from a high resolution metric camera [8] with the onboard exterior camera orientations refined using the fast BA4S bundle adjustment algorithm [9]. We then use popular meshing algorithms, ball-pivoting algorithm [10] in MeshLab [11], greedy triangulation [12] in Point Cloud Library (PCL) [13], and both Poisson reconstruction [14] and screened Poisson [15] in CloudCompare [16]. Details of the implementations and evaluations are provided in Davis et al [17].

D. Texture Mapping Meshes Using View Selection

The resulting polygon meshes contain only per-vertex color retained from the source point clouds. Achieving photo-realism requires applying high-resolution textures to our model. Rather than create a single texture atlas and UV parameterization, we divide the mesh into triangle sets texture mapped to one of a small set of the original high-resolution aerial images evenly spaced about a circular orbit of our scene. We use the associated bundle adjusted camera poses for each image and face normals to choose the view to use as a texture for each

III. Conclusion

We show that city scale urban meshes can be visualized in both the HoloLens and CAVE VR systems. We provide information for others who wish to visualize their meshes in mixed reality devices.

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