## Supplementary Material for $R^3LIVE++$ : The qualitative results of our reconstructed radiance map on $R^3LIVE$ -dataset

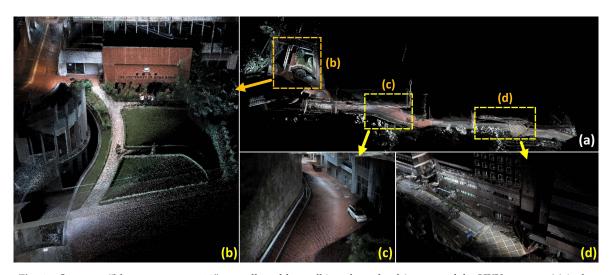
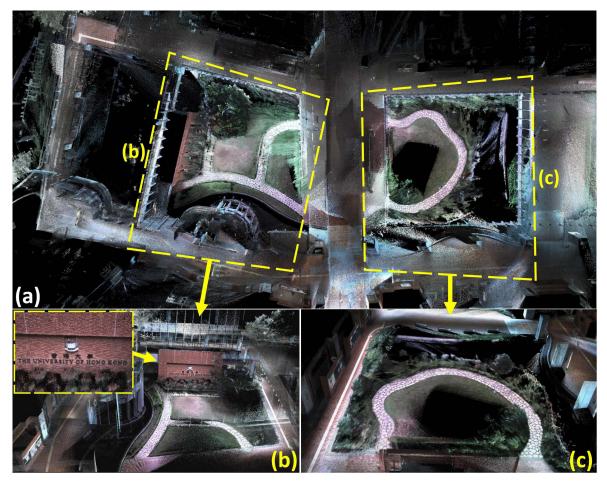


Fig. 1 – Sequence "hku\_campus\_seq\_01" are collected by walking along the drive way of the HKU campus. (a) is the birdview of the whole radiance map, with its details shown in  $(b \sim d)$ .



 $\label{eq:Fig.2-Sequence "hku_campus_seq_00/02/03"} are sampled at the same place but at different times of day (evening, noon and morning, respectively) and with different traveling trajectories. (a) is the birdview of map of sequence "hku_campus_seq_02", with the closeup view of details are shown in (b) and (c).$ 

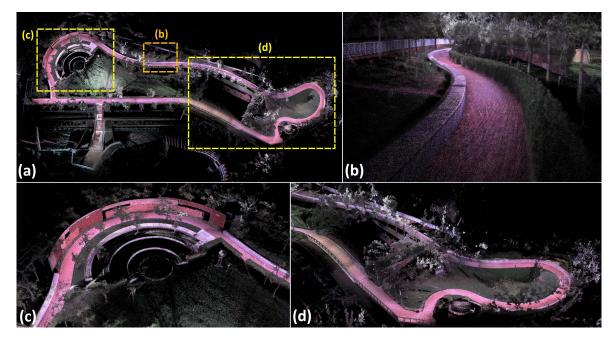
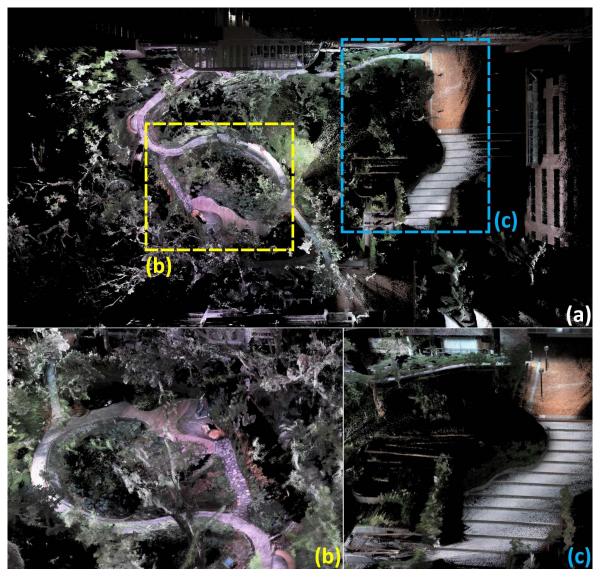


Fig. 3 – Sequence "hku\_park\_00" is collected by walking along the pathway of a garden of HKU. (a) is the birdview of the whole radiance map, with its details shown in (b $\sim$  d).



 $Fig.~4- Sequence~"hku\_park\_01"~is~collected~in~a~cluttered~environment~with~many~trees~and~bushes.~(a)~is~the~birdview~of~the~whole~radiance~map,~with~its~details~are~shown~in~(b)~and~(c).$ 

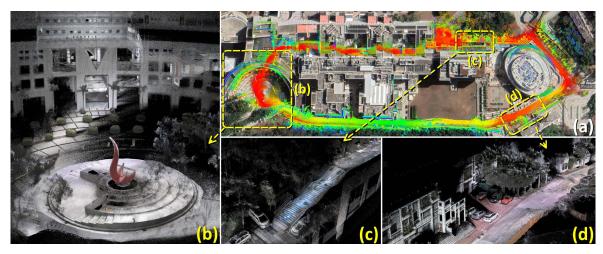
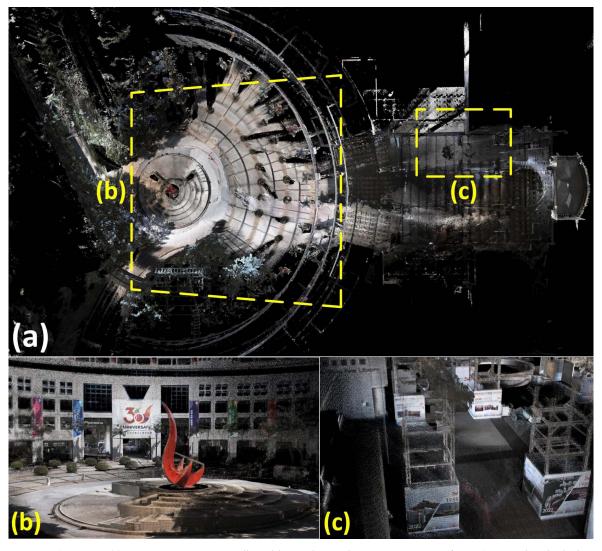


Fig. 5 – Sequence "hku\_campus\_seq\_00/01" are collected within the campus of HKUST with two different traveling trajectories. In (a), we merge the point cloud of sequence "hku\_campus\_seq\_00" with the GoogleEarth satellite image and find them aligned well. The details of our reconstructed radiance map are selectively shown in ( $b \sim d$ ).



 $\label{eq:Fig. 6-Sequence "hku_campus_seq_02"} is collected by exploring the entrance piazza of HKUST, traveling both the interior and exterior of the buildings. (a) is the birdview of the whole radiance map, with the outdoor and indoor scenarios selectively shown in (b) and (c), respectively.$ 

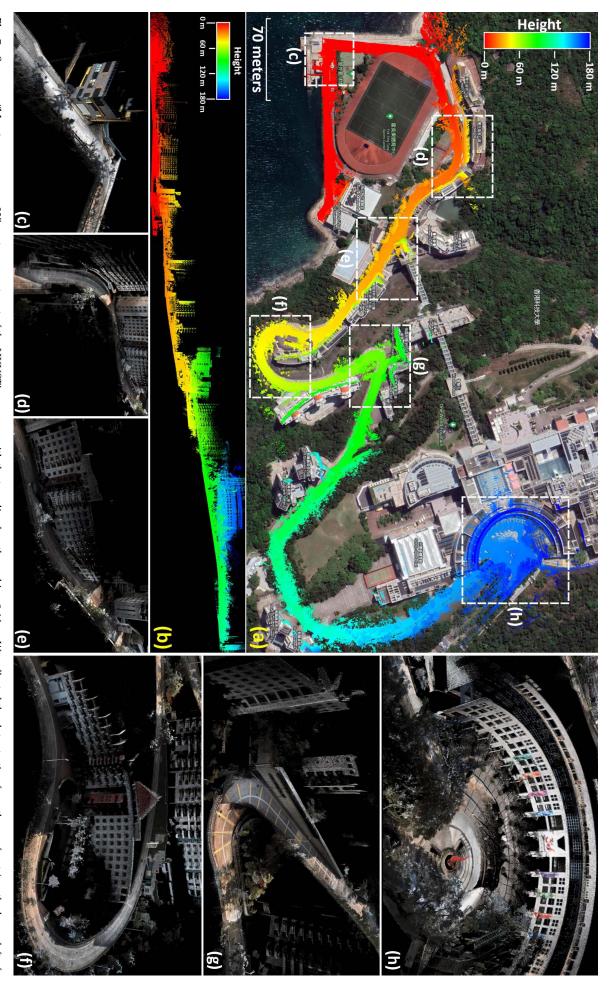


Fig. 7 – Sequence "hkust\_campus\_seq\_03" captures most part of the HKUST's campus, with the traveling length reaching 2.1 km. We collected the data starting from the sea front (see the lower left of (a)) and ending at the entrance piazza (the upper right of (a)) of HKUST. In (a), we merge our reconstructed point cloud map (points are colored by their heigh) with the Google Earth satellite image and find them aligned well. (b) shows the side view of the map. ( $c\sim h$ ) are the closeup views of the details marked in (a). To see the real-time reconstruction process of the map, please refer to the video on YouTube: youtu.be/qxrnIfn-7yA?t=261.