EPITA–École Pour l'Informatique et les Techniques Avancées
CSI–Calcul Scientifique et Image
LRDE–Laboratoire de Recherche et Développement de l'EPITA

Various contributions to ContextCapture: Scan Finder, Point Cloud Visibility and Point Cloud Compression

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Abstract

Text of the Abstract.

Acknowledgements

I would like to express (whatever feelings I have) to:

- My supervisor
- My second supervisor
- Other researchers
- My family and friends

Dedication

Dedication here.

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The need of 3D realistic models is increasingly present in several fields such as architecture, digital simulation or civil and structural engineering. One way to obtain a 3D model might be to build it by hand using specialized modeling softwares. In this case, the realistic aspect of the model could be doubtful. A more reliable way is to use *photogrammetry* or *surface reconstruction* or both at the same time. *ContextCapture* is a reality modeling software that can produce highly detailed 3D reality models. It creates challenging models of all types or scales from simple photographs to point clouds or both of them thanks to its hybrid processing. The emergence of devices such as optical laser-based range scanners, structured light scanners, LiDAR scanners, Microsoft Kinect, etc. is one of the main reasons for the enhancements of *Surface reconstruction*. A scanner, whether static or mobile, output a point cloud. Given a point cloud P assuming to lie near an unknown shape S, the general problem being solved is to construct a digital representation D approximating S. A critical step during the construction of D is usually the normal estimation and orientation of each point p of P.

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Yo [BAL15]

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Bibliography

[BAL15] Souheib Baarir and A.Duret-Lutz. Sat-based minimization of deterministic omega-automata. 2015.