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Reduced order modeling for physically-based augmented reality☆

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Abstract

In this work we explore the possibilities of reduced order modeling for augmented reality applications. We consider parametric reduced order models based upon separate (affine) parametric dependence so as to speedup the associated data assimilation problems, which involve in a natural manner the minimization of a distance functional. The employ of reduced order methods allows for an important reduction in computational cost, thus allowing to comply with the stringent real time constraints of video streams, i.e., around 30 Hz. Examples are included that show the potential of the proposed technique in different situations.

Keywords: Model order reduction, data assimilation, augmented reality.

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