

## Fast GPU-based reuse of paths in radiosity

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We present in this paper a GPU-based strategy that allows a fast reuse of paths in the context of shooting random walk applied to radiosity. Given an environment with diffuse surfaces, we aim at computing a basis of  $n$  radiosity solutions, corresponding to  $n$  light-source positions. Thanks to the reuse, paths originated at each of the positions are used to also distribute power from every other position. The visibility computations needed to make possible the reuse of paths are drastically accelerated using graphic hardware, resulting in a theoretical speed-up factor of  $n$  with regard to the computation of the independent solutions. Our

contribution has application to the fields of interior design, animation, and videogames.