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Tree Variations

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The cost-effective generation of realistic vegetation is still a challenging topic in computer graphics. The simplest representation of a tree consists of a single texture-mapped billboard. Although a tree billboard does not support top views, this is the most common representation for still image generation in areas such as architecture rendering. In this paper we present a new approach to generate new tree models from a small collection of RGBA images of trees. Key ingredients of our method are the representation of the tree contour space with a small set of basis vectors, the automatic crown/trunk segmentation, and the continuous transfer of RGBA color from the exemplar images to the synthetic target. Our algorithm allows the efficient generation of an arbitrary number of tree variations and thus provides a fast solution to add variety among trees in outdoor scenes

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