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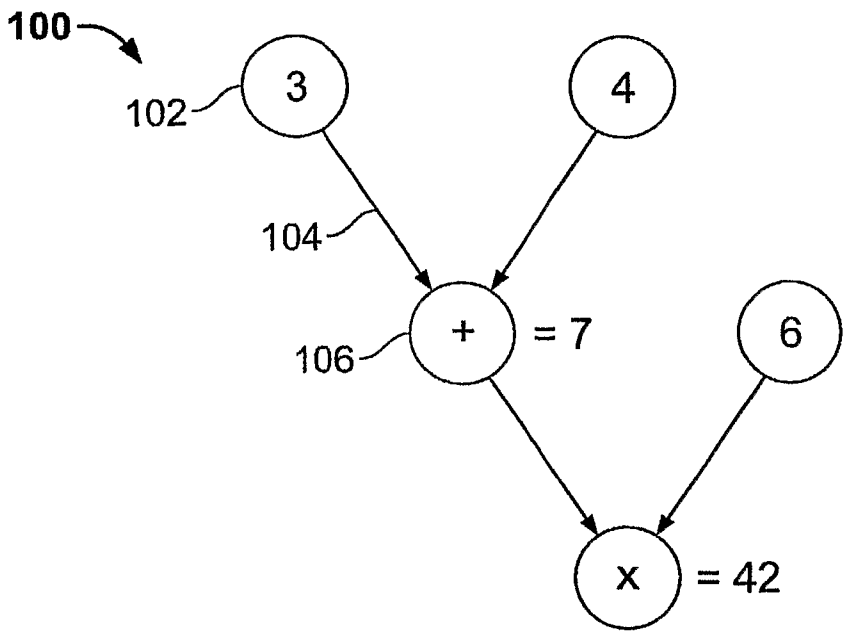
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(54) **Title:** TECHNIQUES AND WORKFLOWS FOR COMPUTER GRAPHICS ANIMATION SYSTEM



(57) **Abstract:** The disclosed implementations describe techniques and workflows for a computer graphics (CG) animation system. In some implementations, systems and methods are disclosed for representing scene composition and performing underlying computations within a unified generalized expression graph with cycles. Disclosed are natural mechanisms for level-of-detail control, adaptive caching, minimal re-compute, lazy evaluation, predictive computation and progressive refinement. The disclosed implementations provide real-time guarantees for minimum graphics frame rates and support automatic tradeoffs between rendering quality, accuracy and speed. The disclosed implementations also support new workflow paradigms, including layered animation and motion-path manipulation of articulated bodies.

WO 2006/113787 A2