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Matthew Rudd* (rudd@math.utexas.edu), Department of Mathematics, University of Texas at Austin, 1 University Station C1200, Austin, TX 78712. *Recent progress on game-theoretic algorithms for geometric motions.*

Simple two-player discrete-time games can be used to approximate the unique viscosity solution of the geometric initial-value problem

$$u_t - |Du| \operatorname{Tr}(A(n, x, t) Dn) - |Du| c(n, x, t) = 0, \quad u(0) = u_0,$$

where

$$n = \frac{Du}{|Du|}, \quad Dn = \frac{1}{|Du|} (I - n \otimes n) D^2u,$$

and A and c are suitable maps. Problems of this type occur frequently in such application areas as image processing and phase transitions, so reliable numerical methods for them are of great interest. I will discuss recent progress on the algorithms inspired by these game-theoretic approximations, including illustrative examples. (Received July 26, 2005)