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Accurate Water Simulation for Visibility Driving

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In this paper we will present a system for the real-time simulation of rain falling on a windscreen. Our modelincorporates external forces like gravity and wind, and also simulates how the rain gets removed from the windshieldby the windscreen wipers. The algorithm is based on the Lattice-Boltzmann Method (LBM), which consistsof a regular lattice that represents the fluid in discrete locations, and equations to simulate its flow. We performall the computations of the LBM on graphics processors for accelerating the calculations. We render the resultsof the LBM simulation using an approximate image-space approach for interactive refraction, which allows thecomputation of refractions of a distant environment through two interfaces.

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