

## **A Simple Embedding Method for Scalar Hyperbolic Conservation Laws on Implicit Surfaces**

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Partial differential equations (PDEs) on surfaces arises in many applications, while analytic solutions are generally unavailable. This presentation introduces a novel embedding method for solving scalar hyperbolic conservation laws on surfaces. By representing the surface implicitly by its signed distance function, we construct a PDE in a small neighborhood of the surface using the push-forward operator, whose solution is given by the constant normal extension of the solution to the surface PDE. Also, we provide a simple way to compute the push-forward operator, which involves only the signed distance function and its Hessian matrix.