

## Highlights

- A highly scalable hybridization method for blending scientific computing and machine learning is proposed.
- The method is illustrated by bootstrapping a complex finite volume scheme for elliptic problems with jump conditions over irregular geometries.
- An end-to-end differentiable level-set library for training neural surrogate models for solving PDEs with sharp boundary conditions is presented.
- JAX-DIPS is the first multi-GPU differentiable PDE solver for problems with discontinuities in three spatial dimensions.