Award \#: 1835712

Elements:Software:Open-Source Robust Geometry Toolkit for Black-Box Finite Element Analysis
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## Fully Automated Simulation Pipeline

Initial geometric data (CAD, scans, volumetric)



Meshing
Simulation-suitable geometry discretization


PDE discretization


100\% success rate on a 10k mesh dataset


Mesh-adaptive p-refinement for error control

$$
k=\frac{\ln \left(B \hat{h}^{\hat{k}+1} \frac{\sigma_{E}^{2}}{\hat{\sigma}^{2}}\right)-\ln h_{E}}{\ln h_{E}} .
$$



