

AI Sovereignty Just Got a Speed Revolution

A neural solver runs 4,600× faster than classical methods—zero training on dynamics.

Swipe for insights →

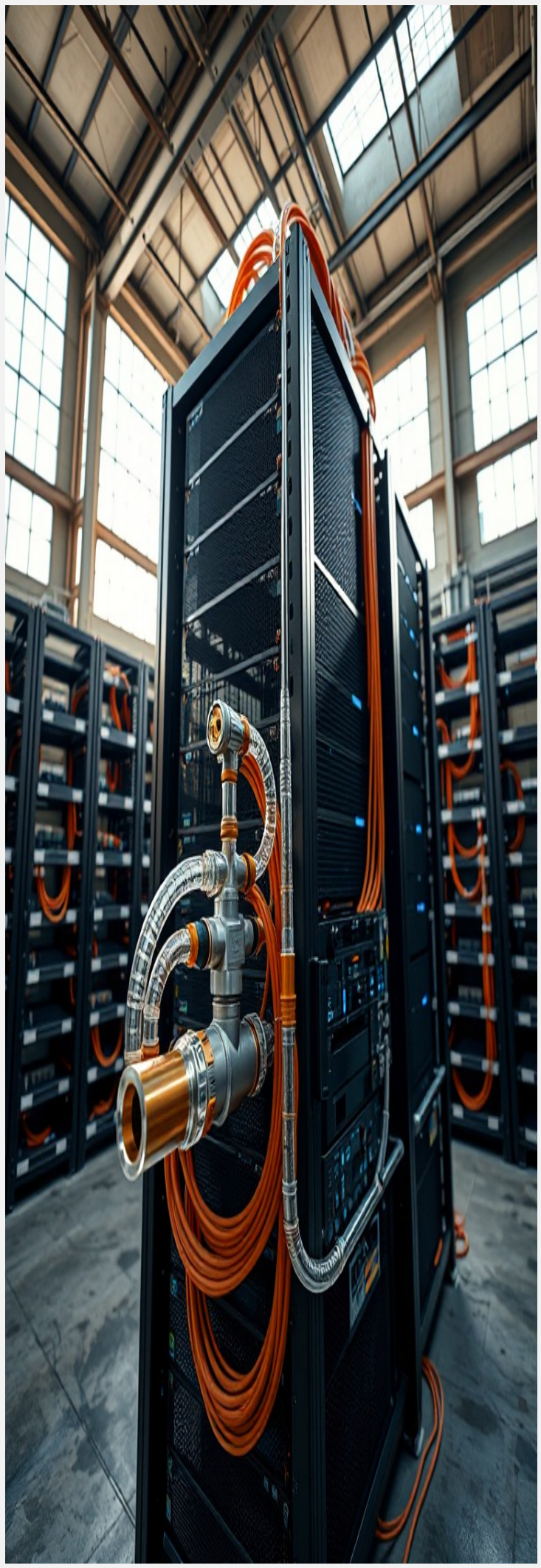
THE DATA

4,600×

Speedup in nonlinear simulations

INOS outperforms sequential classical finite-element solvers in nonlinear elastodynamics.

This 4,600× speedup is not achieved through brute-force compute or data-heavy training. Instead, INOS leverages a pretrained neural operator from static equilibrium solutions and applies it within a time integrator framework. The system learns the implicit solve once and reuses it across dynamic conditions, eliminating the need to retrain on time-varying trajectories.



Source: arXiv · Published November 05, 2026
https://arxiv.org/abs/2611.05439

01

Sovereignty Through Pretrained Implicit Knowledge

True AI sovereignty isn’t about data ownership—it’s about mastering the fundamental mechanics of inference. INOS demonstrates that a single pretrained neural operator, derived from static equilibrium data, can serve as a reusable, general-purpose solver for dynamic systems. This means teams can build sovereign AI stacks that don’t require constant retraining on new scenarios, reducing dependency on external datasets and cloud-based training pipelines.



02

The Power of Zero-Shot Dynamic Prediction

INOS achieves higher predictive accuracy than neural solvers trained on dynamic simulations—evaluated zero-shot. This implies that for sovereign AI, the most valuable training isn't on time-series data, but on equilibrium states that represent the underlying physics. By encoding these principles into a reusable operator, developers can deploy AI systems that generalize across spatial and temporal discretizations without retraining, a core tenet of self-hosted, open-weight sovereignty.

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