

AI Is Rebuilding U.S. Metal Casting

MIT's Fabri uses software to cut weeks from nuclear part production.

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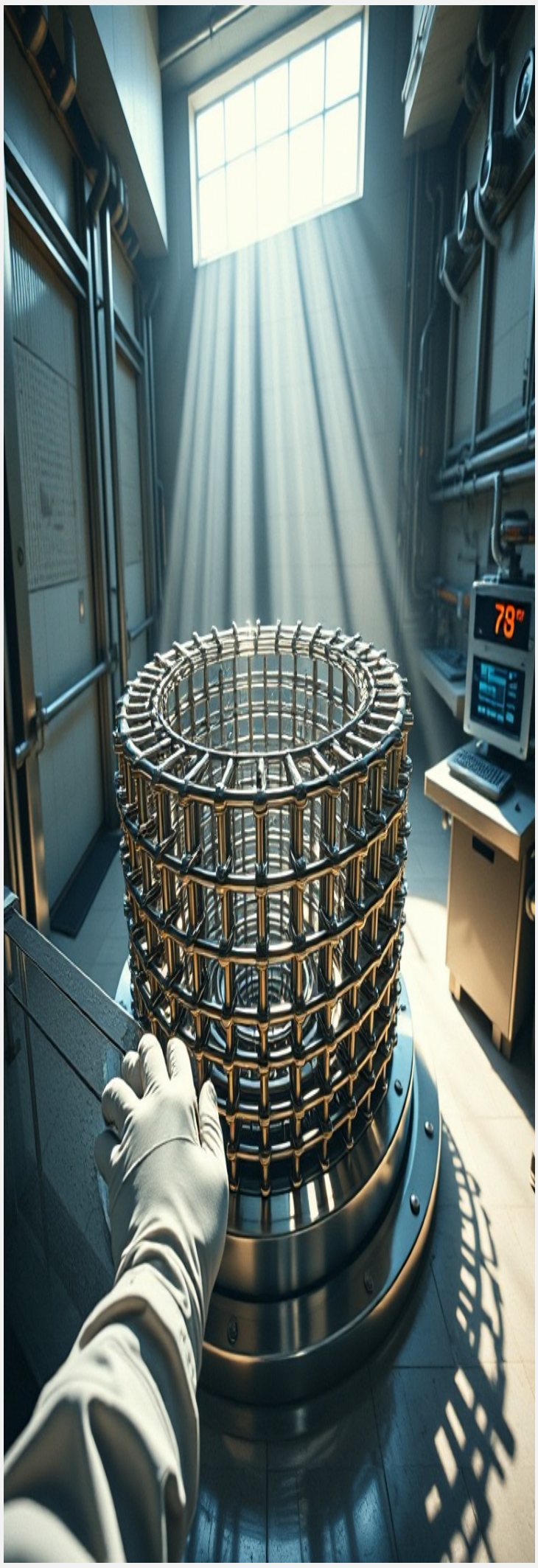
THE DATA

one week

Time from design to finished part

Fabri’s process reduces lead times for critical metal components.

Traditional investment casting can take months due to tooling, labor, and iterative fixes. Fabri’s software-driven approach, using 3D-printed resin patterns and machine learning, enables a complete cycle from CAD file to final part in as little as seven days. This speed is transformative for industries like nuclear energy, where long lead times in component manufacturing delay reactor construction and maintenance.



Source: MIT News · Published November 10, 2026
https://news.mit.edu/2026/streamlining-metal-parts-production-revitalize-american-industry-fabri-1110

01

AI Encodes Foundry Wisdom Forever

The core innovation isn’t just speed—it’s the preservation of domain expertise. As the American Foundry Society reports, experienced engineers are retiring at a 3-to-1 ratio, creating a knowledge gap. Fabri’s FoundryOS software captures every decision, flaw, and correction from each casting, encoding human expertise into machine learning models. This means that when a senior engineer retires, their knowledge doesn’t vanish—it becomes part of the system’s intelligence, ensuring consistency and safety in nuclear-grade parts.



02

Software Is the New Foundry Infrastructure

In nuclear energy, where safety and traceability are paramount, the shift from physical tooling to digital design is a paradigm change. Traditional foundries rely on steel tools that cost up to $1 million and take months to produce. Fabri replaces these with software-defined processes, eliminating the need for hard tooling and enabling rapid iteration. This reduces both cost and risk, allowing for faster qualification of parts in safety-critical applications—such as reactor components or turbine blades—without compromising the rigor of the safety case.

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