CompositesAI

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Partners:

• **AnalySwift LLC**   • **Applied Research Institute, Inc**   • **IACMI**
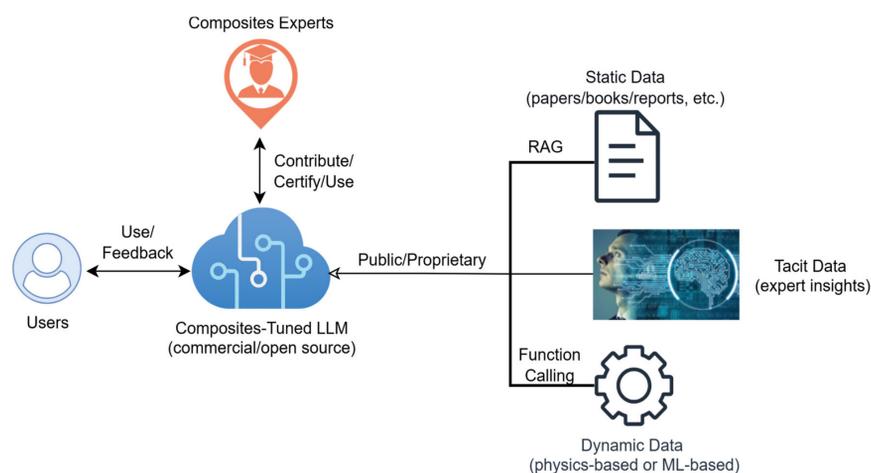
CompositesAI is an AI-powered expert system that consolidates certified composites knowledge and simulation tools via LLMs, combining the authority of leading experts with the precision of simulation software, and enabling domain experts to build custom AI agents without needing AI expertise.

Advanced composites enable lighter, high-performance aerospace structures, but decades of accumulated knowledge remain fragmented across documents, software tools, and experts' tacit experience. Purdue University's CompositesAI addresses this by creating an AI-powered expert system that unifies static data (papers, standards, reports), dynamic data (simulation tools and surrogate models), and tacit engineering insight. CompositesAI provides sourced, explainable, traceable answers to natural-language queries, while linking prompts directly to physics-based or machine-learning simulations. The growing corpus will support a composites-specific foundational model.

Key benefits

• **Consolidate all composites expert knowledge**
• **Democratize expert knowledge using chat interface**
• **Enable simulation tools for entire supply chain**
• **Leverage all public composites knowledge and tools**
• **Intelligentize proprietary knowledge via AI**

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