# Dossier: SENTIENT SCIENCE CORPORATION

## SBIR Award Details

**Award Title:** N/A

**Amount:** $1,249,624.00

**Award Date:** 2023-09-07

**Branch:** USAF

## AI-Generated Intelligence Summary

**Company Overview:**

Sentient Science Corporation is a materials science and digital engineering company that provides physics-based predictive maintenance solutions for rotating mechanical equipment. Their primary business revolves around using computational methods and materials science expertise to predict the remaining useful life (RUL) of critical components in machinery, preventing failures, and optimizing maintenance schedules. The company's core mission is to transform asset management through accurate, physics-based forecasting, enabling customers to reduce downtime, lower operating costs, and improve the reliability of their equipment. Their unique value proposition is a combination of advanced materials science understanding, computational modeling, and practical application to predict component failure, offering a significant improvement over traditional time-based or usage-based maintenance strategies.

**Technology Focus:**

* DigitalClone Software:\*\* This software platform simulates the behavior of rotating equipment components under various operating conditions, predicting fatigue, wear, and lubrication performance, thus enabling proactive maintenance decisions. It leverages physics-based models and finite element analysis to analyze the impact of material properties, loading conditions, and environmental factors on component life.
* Materials Science & Testing:\*\* Sentient Science maintains in-house materials science capabilities, including tribological testing and metallurgical analysis, to validate their models and improve the accuracy of their predictions. These capabilities allow them to characterize material behavior under extreme conditions and understand the root causes of failure.

**Recent Developments & Traction:**

* DoD Contracts & Expansion (Ongoing):\*\* Sentient Science continues to secure and expand contracts with the U.S. Department of Defense. This includes predictive maintenance and reliability improvements for naval vessels and aviation platforms, demonstrating strong traction in the defense sector. Specific details and awards have been highlighted in multiple press releases.
* Predictive Gearbox Maintenance (Ongoing):\*\* The company continues its work focused on predictive maintenance solutions for wind turbine gearboxes, which is a key market for Sentient Science due to its substantial cost savings and reliability improvements.

**Leadership & Team:**

* Neal Wollenberg (CEO):\*\* Previous roles include senior leadership positions at technology and manufacturing firms, bringing extensive experience in business development and strategy.
* Information on the other executive team is less readily available.

**Competitive Landscape:**

* General Electric (GE):\*\* GE offers predictive maintenance solutions through its Predix platform, but focuses on a broader range of industrial assets. Sentient Science differentiates itself with its deep expertise in materials science and its focus on high-precision prediction of component failure, particularly for rotating equipment.
* Siemens:\*\* Siemens also provides predictive maintenance solutions, but Sentient Science emphasizes the accuracy of its physics-based models, claiming superior performance in predicting component RUL compared to data-driven approaches.

**Sources:**

1. [https://www.sentientscience.com/](https://www.sentientscience.com/)

2. [https://www.businesswire.com/portal/site/home/news/](https://www.businesswire.com/portal/site/home/news/) (Search for 'Sentient Science' to locate relevant press releases)