# Dossier: HELICOID INDUSTRIES, INC.

## SBIR Award Details

**Award Title:** N/A

**Amount:** $139,700.00

**Award Date:** 2024-08-13

**Branch:** NAVY

## AI-Generated Intelligence Summary

**Company Overview:**

Helicoid Industries, Inc. appears to be a materials science and engineering company specializing in the development and manufacturing of advanced composite materials mimicking natural helicoidal structures, like that found in the mantis shrimp's club. The company aims to solve the problem of impact resistance and lightweighting in aerospace and defense applications, offering enhanced protection and structural integrity compared to traditional materials. Their value proposition lies in creating stronger, lighter, and more damage-tolerant materials, enabling improved performance, reduced weight, and increased safety in critical defense and aerospace systems. Helicoid likely targets applications ranging from protective armor and structural components to engine parts and unmanned aerial vehicle (UAV) frames.

**Technology Focus:**

* Bio-inspired composite materials: Specifically, Helicoid Industries focuses on creating composites with a layered, helicoidal architecture (similar to a spiral staircase) which reportedly offers superior resistance to cracking and impact forces compared to traditional layered composites.
* Customizable material solutions: They offer tailored composite solutions with varying fiber types (e.g., carbon fiber, glass fiber, aramid fiber) and resin matrices, optimized for specific application requirements. Their website suggests capabilities in resin transfer molding (RTM) and other composite manufacturing techniques.

**Recent Developments & Traction:**

* May 2023:\*\* Announcement of a collaboration with the Air Force Research Laboratory (AFRL) under a Small Business Innovation Research (SBIR) Phase II contract to develop advanced composite structures for hypersonic vehicles. This collaboration aimed to improve the thermal resistance and structural performance of composite materials used in extreme environments.
* October 2022:\*\* Awarded a Phase I SBIR grant from the Department of Defense (DoD) focused on developing lightweight armor solutions for military vehicles using helicoidal composites.
* 2021:\*\* Securing seed funding of an undisclosed amount. The funding source was not publicly specified.

**Leadership & Team:**

* Dr. Chad Korach (CEO):\*\* Background in materials science and engineering, with extensive experience in composite materials development. Prior research and publications indicate expertise in biomimicry and advanced manufacturing techniques.
* The website provides information about several scientists and engineers on staff with PhDs in materials science.

**Competitive Landscape:**

* Hexcel Corporation:\*\* A leading provider of advanced composite materials for aerospace and defense. Helicoid differentiates itself by focusing specifically on bio-inspired helicoidal structures, offering potentially superior impact resistance characteristics compared to Hexcel's more general composite offerings.
* Toray Advanced Composites:\*\* Another major player in advanced composite materials. Helicoid's focus on tailoring solutions based on bio-inspired design principles and its emphasis on impact resistance provides a competitive edge.

**Sources:**

* [helicoidind.com](https://helicoidind.com/)
* [sbir.gov](https://www.sbir.gov/) (Search for Helicoid Industries)
* [afresearchlab.com](https://www.afresearchlab.com/)