# Dossier: M4 ENGINEERING, INC.

## SBIR Award Details

**Award Title:** N/A

**Amount:** $999,973.00

**Award Date:** 2023-08-08

**Branch:** NAVY

## AI-Generated Intelligence Summary

**Company Overview:**

M4 Engineering, Inc. is a research and development (R&D) company specializing in advanced engineering solutions for aerospace, defense, and energy applications. Their core mission is to deliver innovative structural analysis, design, and control solutions to address complex engineering challenges involving composite materials, smart structures, and advanced vehicle systems. They aim to solve problems related to structural efficiency, weight reduction, damage tolerance, and performance optimization in harsh environments. Their unique value proposition lies in their ability to combine cutting-edge analytical tools with experimental validation to deliver practical and reliable solutions that meet stringent performance and safety requirements. They are known for their expertise in multidisciplinary analysis and optimization, custom software development, and hardware prototyping.

**Technology Focus:**

* Development and application of advanced finite element analysis (FEA) tools for predicting the behavior of composite structures under various loading conditions, including impact, fatigue, and thermal stresses. They specialize in progressive damage modeling and simulation.
* Design and implementation of active control systems using smart materials (e.g., piezoelectric actuators) for vibration damping, shape control, and structural health monitoring in aerospace vehicles.
* Software development of custom tools for multi-disciplinary design optimization (MDO), allowing for simultaneous optimization of structural, aerodynamic, and control system performance.

**Recent Developments & Traction:**

* In 2021, M4 Engineering was awarded a Phase II Small Business Innovation Research (SBIR) grant from the US Navy to develop advanced composite strut technologies for enhanced helicopter performance (as cited on their website).
* Continued collaborations with NASA on projects related to advanced structural concepts for future aircraft designs, including research on morphing wings and adaptive structures. (Indirectly implied from company capabilities listed on website).
* Expansion of their software suite with new modules focused on the analysis and design of additively manufactured (3D printed) components for aerospace applications.

**Leadership & Team:**

While specific names are difficult to reliably extract from readily available online sources, M4 Engineering is reported to have a team comprised of experienced engineers and scientists with advanced degrees in aerospace engineering, mechanical engineering, and related fields. Their team likely includes individuals with prior experience in government research laboratories (such as NASA and DoD labs) and leading aerospace companies.

**Competitive Landscape:**

Primary competitors include companies like Collier Research Corporation (known for HyperSizer, a composite design and optimization tool) and Altair Engineering (known for OptiStruct and other simulation software). M4 Engineering differentiates itself through its strong focus on custom software development and its in-house experimental capabilities, allowing them to validate their analytical models and provide more tailored solutions.

**Sources:**

1. [https://www.m4engineering.com/](https://www.m4engineering.com/) (Company website, overview of services and capabilities)

2. [https://www.m4engineering.com/capabilities/](https://www.m4engineering.com/capabilities/) (Detailed overview of technical capabilities)

3. [https://www.m4engineering.com/news/](https://www.m4engineering.com/news/) (Company News - limited recent information, but provides some insights)