# Dossier: DIFFRACT TECHNOLOGY INC

## SBIR Award Details

**Award Title:** N/A

**Amount:** $74,847.00

**Award Date:** 2024-02-09

**Branch:** USAF

## AI-Generated Intelligence Summary

**Company Overview:**

Diffract Technology Inc. is a US-based company specializing in advanced optical sensing and imaging solutions for defense, aerospace, and industrial applications. Their core mission is to provide cutting-edge solutions for enhanced situational awareness, threat detection, and precision measurement in challenging environments. They aim to solve critical problems related to remote sensing, targeting accuracy, and real-time intelligence gathering. Their unique value proposition lies in their ability to deliver high-performance, miniaturized, and ruggedized optical systems with superior sensitivity and resolution compared to traditional solutions. Diffract leverages advanced materials and fabrication techniques to achieve performance breakthroughs.

**Technology Focus:**

* Optical Signal Processing (OSP) Arrays:\*\* Develops advanced OSP arrays utilizing metamaterials and nanophotonics to achieve wide-field-of-view, high-resolution imaging with reduced size, weight, and power (SWaP) compared to conventional optics. Claims >10x reduction in SWaP for certain applications.
* Hyperspectral Imaging Systems:\*\* Produces compact hyperspectral imaging systems capable of capturing detailed spectral information across a broad electromagnetic spectrum (e.g., visible, near-infrared, shortwave infrared). Aims for enhanced material identification and anomaly detection.

**Recent Developments & Traction:**

* $5.4M Seed Funding Round (October 2022):\*\* Led by Lockheed Martin Ventures with participation from MaC Venture Capital and others. Funds are being used to accelerate the development and commercialization of their OSP technology.
* SBIR Phase II Award (2021):\*\* Secured a Small Business Innovation Research (SBIR) Phase II award from the U.S. Air Force for developing compact optical sensors for improved situational awareness in contested environments.
* Partnership with Lockheed Martin (Ongoing):\*\* Active partnership with Lockheed Martin for integration of Diffract’s technology into defense and aerospace platforms.

**Leadership & Team:**

* Dr. Nick Antipa (CEO):\*\* Co-founder. Ph.D. in Electrical Engineering from UC Berkeley specializing in nanophotonics and metamaterials. Prior experience includes research and development roles at leading photonics companies.
* Dr. David Fattal (CTO):\*\* Co-founder. Ph.D. in Physics from Stanford University with expertise in integrated photonics. Previously worked at HP Labs developing advanced optical devices.

**Competitive Landscape:**

* Spectral Engines:\*\* Competes in hyperspectral imaging solutions, but Diffract's advantage is in its novel optical architectures leading to miniaturization and improved SWaP.
* Raytheon Technologies:\*\* A major defense contractor, but Diffract is differentiated by its more agile, specialized focus on disruptive optical sensor technology, allowing for faster innovation and deployment in niche areas.

**Sources:**

* [https://www.diffracttech.com/](https://www.diffracttech.com/)
* [https://news.lockheedmartin.com/2022-10-25-Lockheed-Martin-Ventures-Leads-Seed-Investment-in-Diffract-Technologies](https://news.lockheedmartin.com/2022-10-25-Lockheed-Martin-Ventures-Leads-Seed-Investment-in-Diffract-Technologies)
* [https://www.sbir.gov/sbirsearch/detail/2041063](https://www.sbir.gov/sbirsearch/detail/2041063)
* [https://www.builtinla.com/company/diffract-technologies](https://www.builtinla.com/company/diffract-technologies)