CAPABILITY STATEMENT

Black Cat Laboratories

COMPANY OVERVIEW

Black Cat Laboratories is a Defense & Space Technologies startup specializing in the design and development of next-generation vehicles and robotic systems for defense, aerospace, and critical infrastructure. We develop AI-driven autonomous materials discovery platforms that replace trial-and-error with principled, closed-loop compositional search — delivering superior materials for extreme environments in weeks instead of decades.

COMPANY DATA

HEADQUARTERS
Bismarck, ND

BUSINESS SIZE
Small Business

CAGE CODE
9Z1L5

UEI
FQV9REGHS1G1

OWNERSHIP
U.S. Owned & Operated

CLEARANCE
Unclassified (FCL eligible)

NAICS CODES

336414	Guided Missile and Space Vehicle Manufacturing	PRIMARY
336411	Aircraft Manufacturing	
336413	Other Aircraft Parts and Auxiliary Equipment Manufacturing	
336992	Military Armored Vehicle, Tank, and Tank Component Manufacturing	
541715	Research and Development in Physical, Engineering, and Life Sciences	

CORE COMPETENCIES

- Next-generation vehicle design and development for defense and aerospace applications
- Autonomous robotic systems for extreme environments
- Guided missile and space vehicle systems engineering
- AI-powered materials discovery — finding optimal material compositions for extreme heat, pressure, and corrosion in weeks instead of years
- Computational materials testing — simulating thousands of candidate materials before a single sample is made in the lab

DIFFERENTIATORS

Full-spectrum defense technology development — from vehicle and robotic system design through advanced materials discovery. We bridge the gap between platform engineering and the materials that make those platforms possible.

Mathematically rigorous materials optimization using Bayesian methods and physics-informed constraints. Open-source computational architecture with no vendor lock-in. Integrates Microsoft MatterSim for near-DFT property prediction, MatterGen for structure generation, and IBM FM4M for surrogate enrichment.

Purpose-built for defense materials requirements: hypersonic environments, extreme temperature, and multi-property trade-off problems where the design space is too large for human intuition.

TARGET AGENCIES

DARPA | NASA | AFRL | ARL | NRL | Space Force

PAST PERFORMANCE

Contract performance history will be populated as programs are awarded.

POINT OF CONTACT

REDACTED
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