Delivering Breakthrough Solutions

CFD Research Corporation
Capabilities Overview
Who We Are

CFDRC is established as an Innovation Pioneer and technology Thought Leader supporting industry and government.

Staff comprised of leaders across a multitude of technologies with Education and Experience required to lead advances.

65 Patents and have Out-Licensed 35 with royalties or sold/assigned to our partners.

We have been awarded 1400 Contracts and currently over 80.

CFDRC has transitioned Technologies into the market and spun-out 20 Companies.

Committed to Supporting our Community to improve Quality of Life for all.

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Company Overview

**BUSINESS UNITS**

**Research and Development**
- Small Business Innovative Research (SBIR) and Small Business Technology Transfer (STTR) Programs
- Critical technologies
  - Aerospace and propulsion
  - Energy and materials
  - Life sciences

**Expert Services**
- EXPRESS Blanket Purchase Agreement for Technical Services for Team Redstone (541330)
- Missile and aviation systems support
- Protective technologies and energy systems
- Public Health
- Army and Air Force Medical

**FOOTPRINT**

**EMPLOYEE-OWNED**

- **140 EMPLOYEES**
  - Cleared 40%
  - PhD 35%
  - Advanced Degrees 70%

**CUSTOMER BASE**

**MATURE INFRASTRUCTURE**
Capabilities

**AEROSPACE**
- **Aeromechanics**
  - Aircraft, missile, launch vehicle aerothermodynamics
  - Coupled Aero-servo-thermo-elastic analysis
  - Flight dynamics, separation and abort dynamics analysis
  - Plasma research and applications
  - Model-Order Reduction for complex system simulations
- **Environmental Effects**
  - Flight simulation aeroheating and particulate erosion
  - Software subsystem built in SOA for C4I integration
  - Climatology, now-forecasting, satellite and radar data
  - Integration with fielded situational awareness software

**PROPELLION**
- **Scottsboro Test Facility** for prototype development
  - Air Turbine for Next Generation Jamming Pod
  - Helicopter inlet filter for sand ingestion protection
- **Combustion**, fuel injectors, fuel mixing
- **Divert & Attitude Control Systems**
- **Gelled Propellant Systems**
- **Throttleable Propulsion**

**ENERGY**
- **Energy Storage**
  - Next-generation thermal batteries
  - Solid-state batteries
  - Alternative fuel sources
  - Nanomaterial-based electrodes
  - Battery test and evaluation
- **Smart Energy**
  - Advanced energy management
  - Battery modeling and simulation
  - Grid modernization
  - Power and energy analytics

**APTU Injector Development**

**Thrust Profile**

**Thruster Modeling**

**Bio-Battery**
Capabilities

**MATERIALS**

- High Performance Materials
  - Material property prediction
  - High-performance energetics
  - High-temp material & coatings

- Radiation Effects
  - Electronics and materials
  - Radiation environments
  - Application integration

- Additive Manufacturing
  - Process optimization
  - Models linking build process to finished part properties
  - Applications related to certification & qualification

**LIFE SCIENCES**

- **Warfighter Protection:** Traumatic Brain Injury, Improved Helmets/Pads/PPE, Vehicle Crew Injury
- **Warfighter Performance:** Lightening the Load, Spinal/Shoulder/Neck injury, Pain & Fatigue
- **Personalized Health Apps & Portal:** Asthma, Burn Injury, Opioids, Warrior Health, Vestibular Rehabilitation
- **Drug Delivery, PK/PD, Toxicity Modeling**

- **Microfluidic biochips** for sample preparation and environmental, biological and clinical diagnostics
- **SynVivo** for Drug Discovery

**CYBER SECURITY**

- **Protective Technologies**
  - Verification, validation, and accreditation of critical information
  - Electronic component evaluation for weapons systems
  - Security of FPGAs, ASICs, and components
  - Modeling of mitigation approaches

- **Trust and Access**
  - Efficient methods of establishing trust in information from Service-Oriented Architectures & Big Data
  - Access control and awareness via logical proximity
  - True assessment of “need-to-know”
  - Beyond spatial, temporal, organizational, and operational domains

- **Multi scale tools with links to macro scale platforms like CFD**
- **Fracture Dynamics**

- **www.synvivobio.com**
CFD Research Awarded Blanket Purchase Agreement (BPA) for Expedited Professional and Engineering Support Services (EXPRESS)

LARGEST CUSTOMERS

TEAM

NEW NAICS CODE

- 30 Technical Areas
- Over 200 Requirements

80% Small Business

74 Teammates Meet All Requirements