



# Sensors, Collection & Phenomenology

## SCIENCE MEETS TECHNOLOGY

Leidos takes a disciplined approach to understand the underlying science, no matter the sensing modality, of the object of interest and environment at the most fundamental level possible. We then look at technology capable of sensing the incident of interest, understand the physics of each method of detection and apply mathematical signal/image processing techniques to derive actionable insight. We cover a wide range of sensing modalities and implement multi-sensor data fusion and tracking algorithms improving detection sensitivity and tracking accuracy.

### Biometrics

We understand the power of unique human identification and play an active role in programs critical to the safety of citizens, facilitation of commerce, and security of nations with biometric solutions. We have developed a range of innovative devices, systems, and algorithms to support automated fingerprint and palm print identification, facial and iris recognition, DNA identification, and all other forms of biometrics security.

### Electro-Optical (EO) and Radio Frequency (RF) Sensing

We develop innovative solutions in sensing and signal processing for space infrared, infra-red (IR), ultraviolet (UV) and multi-/hyper-spectral sensing, radar, and RF communications applications. Our work often focuses on real-time threat detection and situational awareness in demanding tactical and strategic environments including development of high-performance space EO/IR sensors and signal processing for detection and tracking of ballistic and hypersonic threats. We also develop novel sensors for space situational awareness and remote proximity operations.

## Ground, Ocean, and Radiation Sensing

Leidos performs acoustic, magnetic, and seismic sensing technology using very low space, weight, and power (SWaP) sensing and signal processing applications that include ultra-low power cueing technology to enable long life. Our ocean sensing systems include sensitive passive acoustic technology to detect and counter surface and subsurface threats, a buoy-based "Internet of Things" for sensing the ocean surface over wide areas, along with autonomous surface and undersea systems carrying sensors and anti-torpedo countermeasures. We develop and deploy radiation sensing devices including X-ray radiography imaging systems for explosive ordnance disposal (EoD) applications, solid-state neutron detectors for border portal monitoring, gamma backscatter sensors for contraband detection and gamma-ray spectrometers for detection, location, and ID of radiation sources.

## Advanced Computing

Leidos transitions advanced solutions to programs of record in low-SWaP, high-performance packages, including high computer processing capacity for applications where low latency is critical, onboard processing is essential and communication bandwidth is limited. This includes design, development, and fabrication of novel System-on-a-Chip (SoC) processors exploiting the latest signal and imaging technology derived from commercial cell-phone/smartphone processor cores and high-speed inter-processor communications fabrics.

## Electronic Warfare

We lead in the development of advanced Electronic Warfare technology including best-in-class Cognitive EW solutions using machine learning that enables systems to sense and learn the signal environment, discern previously unseen threats, and negate them in real-time. We also develop systems for detecting and locating emitters ranging from high-frequency sources to X-band.

## Assured-Position Navigation and Timing (A-PNT)

Leidos develops imaging systems to provide high accuracy PNT even in the absence of GPS navigation signals. We have developed and fielded systems for missile, manned/un-manned aircraft, and ground vehicle applications.

## Tactical Data Links

We enable the rapid delivery and exchange of information between command and control and sensor platforms within land, air, maritime, and space domains, to deliver situational awareness and enhanced operating effectiveness via mission-critical communication systems. This includes SDR systems and MANET network for demanding applications.

## About Leidos

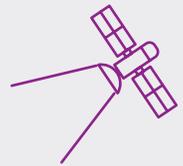
Leidos is a Fortune 500® information technology, engineering, and science solutions and services leader working to solve the world's toughest challenges in the defense, intelligence, homeland security, civil, and health markets. The company's 32,000 employees support vital missions for government and commercial customers. Headquartered in Reston, Virginia, Leidos reported annual revenues of approximately \$10.19 billion for the fiscal year ended December 28, 2018.

## FOR MORE INFORMATION

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Our A-PNT systems provide  
**>10m accuracy**  
for airborne & ground  
applications in GPS-denied  
environments



Designed, fabricated,  
integrated & tested the  
**first commercially-**  
hosted military geo-  
synchronous staring wide field-  
of-view EO/IR space payload



Built and deployed  
**>700 X-ray**  
**radiography sensors**  
for explosive ordnance  
disposal