LInC
Leidos Innovations Center

Research, Develop, and Transition Innovative Technologies and Solutions

The Leidos Innovations Center (LInC) was established to be the technology-driven core of Leidos and continues our tradition of solving the toughest scientific and engineering problems for customers. We primarily perform externally-funded contract research and development (CRAD) work for customers in Defense, Intelligence, Health, and Homeland Security Science and Technology (S&T) organizations. Our CRaD research agenda is driven by the Leidos enterprise business strategy. A key part of our strategy is to transition advanced technologies from the laboratory to operational systems for our customers.

Examples of key Leidos successes include the transition of autonomous surface vessels, undersea acoustic sensing systems, air surveillance systems, and ground sensor systems to the military. We have also transitioned technologies for Explosive Ordinance Disposal (EOD) radiography, contraband detection, precision train location, and High-Frequency (HF) source geolocation into products. Our novel cell-free peptide synthesis technology is finding application in commercial development of biologics.

Science and Technology Research and Development

Multi-Spectrum Warfare and Analytics

We perform research and development work in Machine Learning and Data Analytics, electro-optical (EO) and radar-based Automatic Target Recognition, EO sensing and countermeasures, target signature simulation, and airborne autonomy. We also develop Directed Energy technology in the High Power Microwave (HPM) and High Energy Laser (HEL) domains and develop stand-off chemical/explosive detection.

LInC personnel are developing technology for combining multiple fiber lasers into a single high energy beam for application to high energy laser weapons.

Intelligence, Surveillance, and Reconnaissance (ISR) and Chemical, Biological, Radiological, Nuclear (CBRN) Sensing

We develop distributed networked ground sensors that may be hand-emplaced, dropped from aircraft, or scattered on the ground. These are low Size, Weight, and Power (SWaP) systems able to operate autonomously for more than a year. Applications include vehicle and personnel detection and also fixed facility monitoring to address various Intelligence Community (IC), battlefield, and border security needs. Other work includes GPS-aided and GPS-denied navigation technology development.

We also develop space payloads and associated processing for proliferated smallsat constellations of Infrared (IR) surveillance systems. These constellations will detect/track ballistic missiles and advanced threats and also provide networked communications. We also develop cutting edge chemical, biological, and radiation sensors that can detect Weapons of Mass Destruction. We produce portable x-ray systems for detecting explosives, weapons, and other contraband, supporting rapid deployment in extremely tight spaces and near real-time acquisition of multiple images from a single approach by a user.

Electronic Warfare (EW)

We develop high-performance signal processing solutions for radars, radio frequency (RF) sensors, and RF communications equipment. Our solutions are derived from high fidelity modeling and simulation of system performance in representative operational environments and against use cases consistent with the concept of operation. We design and fabricate custom System-on-a-Chip (SoC) components and leverage them to reduce size, weight, and power (SWAP) for a broad range of real-time applications.

The LInC's Commercially-Hosted IR Payload (CHIRP) is the first military-wide field of view, staring array sensor launched as a hosted payload on a geosynchronous COMSAT.

A key driver in our SoC research is built-in system security and resistance to attack. We apply artificial intelligence and machine learning (AI/ML) to solve a number of challenging problems. We mature, produce, and transition capabilities from research and development to programs of record and products. Our Bloodhound® product is one such example: a portable, low-profile, high-frequency geolocation system for tactical operations.

The LInC's Bloodhound® HF geolocation system can rapidly determine locations of high-frequency emitters at long range from a single, low profile installation that can be set up in just a few hours.

Artificial Intelligence / Machine Learning (AI/ML) and Cyber Technology

AI is improving many ways in which our industries operate, but this also presents new concerns about reliability, vulnerability, resilience, explainability, and security. Through R&D programs, Leidos is developing ways to apply strong security paradigms to attack surfaces and potential vulnerabilities to AI/ML systems. In addition to developing strong security guarantees, we are creating ways to reduce mission-impacting biases, verify that systems are trained adequately for deployment, and ensure they cannot be fooled by bad data or spoofing. In particular, our AI/ML Center of Excellence (COE) provides technical expertise for our work in vehicle autonomy, data analytics, captured media exploitation, multi-source data fusion, internet managed-attribution, social network analysis, and cognitive Electronic Warfare. We also work in automated sensor cueing, data fusion, and predictive analytics for applications such as aircraft maintenance.

We protect some of the world's most attacked networks and most valuable assets. Our cyber solutions and services ensure an adaptive defense strategy, sustainable threat protection, and a mature security posture. Our Cyber Technology COE brings an established track record for delivering agile, mission-enabling cyber solutions, insider threat detection, cyber-attack prediction, and both defensive and offensive cyber operations.

SCIENCE AND TECHNOLOGY EXPERTISE

LInC has over 1,000 employees, the vast majority of whom have STEM educations, advanced degrees, and security clearances. Our staff includes about one-third of our company's Technical Fellows. LInC's mission is to research, develop, and transition innovative technologies and solutions to solve enduring and emerging national and global technical challenges. We're able to meet that mission because we have the broad technical expertise needed to rapidly prototype and field solutions in areas such as AI and machine learning, big data, cyber, surveillance systems, autonomy, sensors, applied biology, and directed energy.

Our people work in state-of-the-art facilities that include laboratories and classified work areas in four major locations, primarily chosen for proximity to our customer base. These locations include Arlington, VA; Dayton, OH; Albuquerque, NM; and San Diego, CA.

WHY PARTNER WITH LEIDOS

If you have a challenge where innovative or disruptive technology could make a difference to your mission, Leidos is your partner. The LInC develops ground breaking solutions leveraging a wide range of technologies including advanced computing, AI/ML, signal processing, and sensors (including radio frequency; optical; and chemical, biological, radiological, and nuclear). The LInC conducts projects on a variety of timescales, from quick reaction capabilities to long term technology development, helping customers solve some of the world's toughest challenges in the defense, intelligence, civil, and health markets.

NEXT STEPS

Through our culture of innovation and history of performance, we maintain deep customer trust built on integrity and develop and provide customer-centered capabilities and solutions at speed and scale for execution efficiency. Contact us today to discover how we can help you solve your challenges today and in the future.

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.

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