

NSTXL
NATIONAL SECURITY TECHNOLOGY ACCELERATOR

Technology Areas

Artificial Intelligence/ Machine Learning

- AI-Optimized Hardware
- Computer Vision, Image and Video Processing
- Decision Management and Optimization
- Education Technologies
- Human-Computer Interaction
- Industrial Systems, including Robotics
- Machine Learning Algorithms and Platforms
- Medical Diagnostics
- Security, Cybersecurity, and Authentication
- Virtual Agents and Assistants
- Human Performance Engineering

Autonomous And Unmanned Systems

- Vehicle-Based Systems

Communications

- Assured Communications
- 5G Training Applicability
- Mobile Operations
- LTE
- Mobile Training Stations
- Lasers
- Assured Command and Control (AC2)

Cyber

- Cyber Warfare Operations
- Cyber Training
- Cybersecurity
- Cyber Infrastructure

Defense Systems and Applications

- Integrated Warfare Systems
- Missile Defense
- Gun & Projectile Systems
- Defense Assurance
- Integrated Fires (IF)
- Battlespace Awareness (BA)

Enhanced Fabrication

Hypersonics

Information Technology, Systems, & Infrastructure

- Cloud Computing and High-Performance Computing
- Internet of Things (IoT)
- Ground Data Processing
- Instrumentation, Test & Training
- Logistics Software
- System Survivability
- Enterprise Resource Tools
- Model Based Systems Engineering (MBSE)
- DevSecOps
- Design & User Experience
- Big Data Anaylsis and Management

Microelectronics

- Radiation Hardened Microelectronics
- Design Assurance
- GaN MMICs
- Optoelectronic Microelectronics
- New Microelectronics Development, Demonstration, Capability Insertion
- Microelectronics Obsolescence and Replacement
- Microelectronics and Electronic Warfare

Modeling, Simulation, Training & Virtualization

- Immersion (VR/AR/MR)
- Modeling & Simulation
- Synthetic Terrain
- Game Engine
- Workforce Development
- Human Systems Integration
- Range Utilization
- Threat Engineering
- Medical Modeling & Simulation
- Haptics

Radar

- High Power Transmitters
- Active Arrays
- Transmit/Receive Modules
- Radar/EW Substrate Materials
- Microwave Tubes

Robotics

- Human Assistive Technologies and Bio-related Robotics
- Human-Machine Interfaces and Control/Architecture
- Robotic Applications
- Robotics in Agile Manufacturing, and Co-Robots

Space Satellite bus/structure/ power/attitude control/propulsion

All elements and subsystems associated with the spacecraft operation except for mission specific systems (mission payloads) and communications.

Space Artificial Intelligence/ Machine Learning

Application of AI/ML to support all aspects (ground/space/launch) of space operations

Space Command, Control, and Communications Architecture

The definition and arrangement of systems to satisfy the mission's communications, command, and control requirements.

Space Electronics

Electronics specifically designed or intended for space operations e.g. FPGAs, rad-hard, etc.

Space Ground Segment

The fixed and mobile ground stations, connected by various communication links, that support command and tracking of the mission as well as receive and process telemetry and mission data. Includes the distribution of mission data to operators.

Space Launch Segment

- All components required to deliver the mission from the ground to space

Space Mission Design/ CONOPS/Evaluation

- Design of a space system/architecture

Space Mission Operations and Architecture

Detailed assessment of how the organization will operate and control the selected mission. Definition of the major elements required to execute mission operations.

Space Payload - Data Processing and Transport

- Communication and processing

Space Payload - Optical (Visible and IR)

- Optical associated payloads (e.g. laser, IR, etc)

Space Payload – Radio Frequency

- RF associated mission payloads (e.g. SAR, SIGINT, etc)

Spectrum Missions

- Electronic Warfare (EW)
- Infrared Warfare
- Radar Technologies
- Expeditionary EW
- Infrared/Radio Frequency (IR/RF) Systems Technologies
- Airborne Electronic Attack Systems
- Cognitive/Adaptive
- High Power RF
- Spectral Agility
- Low Probability of Intercept Countermeasures
- Coherent RF Transmission
- Multispectral Sensing

Strategic Missions

- Strategic Missions Hardware
- Radio Frequency (RF)
- COTS Programmable Integrated Circuit
- FPGAs
- Early Warning Radar & Satellite Systems

Supply Chain

- SOTA Digital and Mixed Signal CMOS Microelectronics
- SOTA RF and Photonics (Non-CMOS Based)
- Advance Packaging and Testing
- Non Von Neumann Architectures
- On-Demand Manufacturing