

### Our Research

We perform innovative research and development involving sensor signal processing, radio frequency systems, and advanced systems engineering.

Our work includes software development, hardware design and production, and chemical engineering. Our creative, highly-technical staff continually seek new research opportunities and work collaboratively to transition our work into both government and commercial products and services.

### Our Engineering Services

We offer systems engineering and analytical services to support the unique requirements of our customers

- › Systems Analysis
- › Systems Engineering
- › Requirements Definition
- › Engineering Testing

### Our Products

Many of our research and development projects have transitioned to commercial products available for licensing or direct purchase. Product domains include:

- › Video Processing
- › Embedded Imaging
- › Fusion and Tracking Algorithms
- › Modeling, Simulation, and Emulation
- › Radio Frequency Systems

### About Toyon

Toyon Research Corporation is a nationally recognized small business performing both technology development and systems engineering analysis.

- › Founded in 1980
- › Employee-Owned
- › Small Business for Research and Development
- › Offices in Santa Barbara, CA and National Capital Region

### Our Facilities

We maintain a highly technical working environment to support Department of Defense, government and private sector customers.

- › Cluster Computing Resources
- › RF Laboratory Facilities
- › RF Products Team AS9100 Quality Certified

### Our Staff

Our unique combination of technical expertise, objectivity, and creativity in a small business environment enable responsive solutions to difficult problems. Our staff includes a balanced mix of B.S., M.S., and Ph.D. degrees in a wide breadth of technical backgrounds.

- › Computer Science
- › Engineering Disciplines
- › Physical Sciences



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**WWW.TOYON.COM**

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***Providing innovative solutions  
to national challenges with  
technical analyses, research, and  
product development.***

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## How We Work

Toyon is organized in five business teams that perform applied research, systems analysis, and product development to support the requirements of our customers. We offer software and systems engineering services, sell a unique portfolio of innovative products, and periodically publish our research to support the advancement of our industry.

## Business Teams

### ISR Algorithms

### Antenna and RF Systems

### Homeland Security

### C4ISR/Missile Systems Analysis

### RF Products

### Homeland Security

The Homeland Security Team specializes in implementing and evaluating sensor and air handling systems for critical infrastructure protection.

#### Our strengths include:

- > Expertise in chemical, biological and radiological threats
- > Sensor systems to detect air contaminants
- > Contaminant transport modeling and tracer testing
- > Decision-support information systems
- > Integrating building controls with sensor systems
- > Test and evaluation of operational equipment

We support the full lifecycle of facility protection capabilities, from upfront system architecture definition to system integration, qualification, and recurring integrity monitoring.

### ISR Algorithms

The ISR Algorithms Team develops advanced algorithms and embedded hardware to search, detect, localize, characterize, identify, and track objects of interest.

#### Our strengths include:

- > Video and image processing
- > Automatic target recognition
- > Asset and sensor control
- > Data fusion and target tracking
- > Embedded video processing

We develop and test our algorithms using a combination of simulated, recorded, and live sensor measurements, our own UAVs, and simulations developed by our C4ISR team.

### C4ISR/Missile Systems Analysis

The C4ISR / Missile Systems Analysis Team performs systems analyses in support of advanced sensor and weapon programs.

#### Our strengths include:

- > Evaluation of system effectiveness
- > Feasibility and utility studies
- > Derivation of systems requirements
- > CONOPS development
- > Modeling and Simulation

We advise government organizations by performing detailed systems analyses that quantify technical performance. These analyses are aided by a suite of high-fidelity engineering and physics based modeling and simulation tools, which include SLAMEM and ISRTTool.

### Antenna and RF Systems

The Antenna and RF Systems Team conducts advanced research and development focused on prototype system demonstrations.

#### Our strengths include:

- > Adaptive and multifunctional antennas
- > Navigation systems and control
- > Advanced electronic systems design
- > Advanced motor and generator design
- > Distributed aperture systems
- > Radar systems design and analysis

We maintain a full antenna and electronics laboratory, including an automated far-field anechoic chamber.

### RF Products

The RF Products Team produces advanced active and passive antennas and test equipment under AS9100 Quality standards.

#### Our strengths include:

- > Adaptive and multifunctional antennas
- > Custom RF component design and production
- > Mature, high-reliability RF products
- > Technology Readiness Level: TRL8+
- > AS9100 Quality Certification
- > Environmental certification services

We maintain access to national test facilities for environmental and RF testing and certification of specialized RF products.



INNOVATIVE, RESPONSIVE, AND INSIGHTFUL SOLUTIONS