



# Toyon Research Corporation

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CAREER OPPORTUNITIES – Sterling, VA

## **Advanced Researcher, Data Fusion/Analytical Services (Ref #1819-H)**

Toyon is seeking an advanced researcher to develop, implement, and analyze algorithms used in the Toyon Autonomous Systems team for the Data Fusion, Asset Control, and Analytical Services groups. The researcher would work primarily within one of these groups but would be expected to gain familiarity with and potentially work with all three groups.

### Responsibilities:

- Use solid modern analytical approaches and methods to develop algorithms in support of the team vision
- Assist senior engineers and leaders with projects of significant scope that require cross-functional participation
- Participate in live experimentation with both live and simulated assets
- Communicate and present technical results to customers in both report and presentation formats
- Grow professionally to become a subject matter expert in the field of autonomous systems

### Minimum Qualifications:

- Master's or Ph.D. degree in an engineering, physics, math, or computer science program
- Working level skills in the development and/or implementation of advanced algorithms for estimation and control systems.
- Willing to work autonomously on projects toward common team goals
- Strong problem-solving/analytical skills
- Good communication, interpersonal and presentation skills
- Programming familiarity in C++, MATLAB, or Python

### Preferred Qualifications:

- Data Fusion: Knowledge of Linear Algebra, numerical methods, and estimation theory (e.g. Bayes Theory, Kalman Filters, particle filters), and ability to work comfortably in MATLAB and/or Python. Familiarity with C++ is desired.
- Analytical Services: Physics, math, programming familiarity, numerical analysis. Course level familiarity with data fusion estimation theory is helpful. Simulations are written in C++. Metrics are written in MATLAB and Python.

**U.S. Citizenship is Required.** Ability to qualify for a US Department of Defense security clearance required.

Please e-mail resume to:

employment@toyon.com

**WE OFFER AN EXCEPTIONAL EMPLOYEE BENEFITS PACKAGE!**

## Autonomous Systems (AS) Team

Autonomous Systems team designs, develops, and tests advanced multi-platform mission control algorithms to support complex autonomous military missions. To accomplish the task requires the complex coordination of multiple algorithms to achieve the effects of an artificial intelligence system.

To achieve this goal the AS team works in three interrelated technical areas:

- **Data Fusion:** The problems of interest are multi-sensor and multi-platform track fusion and correlation with state-of-the-art surveillance systems operating in a multi-target environment using data fusion. Good role for meticulous math, physics, and engineering intellectuals.
  - Relevant course work: Advanced mathematics to include linear algebra, numerical methods, and estimation theory (e.g. Bayes Theory, Kalman Filters, particle filters), and ability to work comfortably in C++, MATLAB, and/or Python.
  
- **Analytical Services:** Apply advanced mission level simulation and evaluation software to provide both stimulus and grading for algorithm performance. Measuring system and component performance is an important part of any advanced algorithms development that requires knowledge of all the underlying algorithms under test. The work in this area spans a wide breadth of technical fields and military operational domains. Good place for top down thinkers.
  - Relevant course work: Physics, math, programming familiarity, numerical analysis. Course level familiarity with data fusion estimation theory is helpful. Simulations are written in C++. Metrics are written in MATLAB and Python.
  
- **Asset Control:** Multi-asset control algorithms require multiple nested control loops ranging from high-frequency action in the moment, to low frequency task selection.
  - Relevant course work: Control systems, numerical methods, optimization techniques, and ability to program in C++, MATLAB, and/or Python.