

When developing algorithms to classify, detect, and track objects, training is usually measured in days and weeks. Not hours. At ECS, we've shortened the time it takes to collect, normalize, and label operational data from the field. Through rapid retraining (RRT), ECS enables teams to train, test, and redeploy computer vision (CV) models in under 36 hours, meaning your organization can improve the performance of its autonomous systems faster than ever before.

## < 36 hours

Time between post-mission processing and model redeployment

## > 50%

Historical improvement in CV model performance

### Applications of ECS' platform-agnostic RRT include:

- Autonomous systems and vehicles
- ATR (Automatic Target Recognition)
- IVAS (Integrated Visual Augmentation System)
- Department of Homeland Security border stations
- Department of Energy nuclear site security

Interested in learning about how ECS Rapid Retraining can transform your analytics and research operations?

Reach out and talk to an expert today

Contact us: [AI-RRT@ecstech.com](mailto:AI-RRT@ecstech.com)

ECS safeguards the world's most sensitive data and critical operations for leading enterprises across the U.S public sector, defense, intelligence, and commercial industries. We maintain partnerships with leading cloud, cybersecurity, and AI/ML providers and hold specialized certifications in their technologies.

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ECS Proprietary



# RAPID RETRAINING

Test more, train more, and deploy autonomous systems faster than ever before

## Operate at the Speed of the Mission

ECS is the only company to codify and internalize the entire RRT procedure under one roof. We have infrastructure, people and expertise to help with every step of CV training, from algorithm development to data management, processing, labeling, and more. Our experts help the DoD develop powerful applications in geospatial intelligence, unmanned and autonomous aviation, radar and sensor engineering, and more. ECS also helps the DoD develop, operate, and maintain the Joint Enterprise Data System (JEDS) and the Irregular Warfare Support Directorate's (IWTSD) Secure Unclassified Network.

**2nd**  
Largest provider of AI/ML solutions to DoD

**300+**  
Models deployed to the field

**15**  
Number of operation sites around the globe



## Case Study: Department of Defense Smart Sensor

ECS RRT enabled a Department of Defense customer to increase the precision, recall, and F1-score of their autonomous reconnaissance vehicle.

### Model performance before RRT:

- Precision = 55%
- Recall = 20%
- F1-score = 29%

### Model performance after RRT:

- Precision = 95%
- Recall = 71%
- F1-score = 81%



## Improve the Precision, Recall, and Performance of Your Autonomous Systems



### Post Mission Data Processing

ECS data team performs quality checks and uses advanced data transformation methods to get data to desired machine learning (ML) format.



### Data Upload to Platform

Data team uploads data to the Joint Enterprise Data System (JEDS) for secure dissemination.



### Rapid Labeling

Experienced ECS analysts label data from the field. Data is uploaded back to JEDS within 12 hours for testing.



### Model Retrained

Labeled data is tested against the prior version of the model. The model is then trained using this new data.



### New Model Installed

New model is uploaded to vehicle and sent to field for immediate use.

Photo Credit - Army.mil