

 Directory

Data &amp; Monitoring

# duostech

## AI Efficiency - Always One Step Ahead in Railcar Intelligence!

Over 6,000 train accidents occurred in the past 6 years in the United States.

Duos Technologies is redefining the future of railcar inspection and safety through the power of AI efficiency. By combining AI-driven analysis with expert human oversight, we ensure inspections are faster, safer and more reliable than ever before. From reducing derailment and accident risks and cutting yard dwell times to enhancing border security and spotting unauthorised riders, our AI solutions keep rail operations moving smarter, safer and one step ahead.

Duos Railcar Inspection Portal (RIP®) offers comprehensive remote visual inspection of railcars aided by the power of advanced artificial intelligence and machine learning (AI/ML) algorithms.

### Railcar Inspection Portal (RIP®)

#### Railcar Inspections Made Easy

The Railcar Inspection Portal (RIP®) from Duos Technologies is an advanced, AI-enabled imaging system captures high-resolution images of railcars traveling at track speed (to 125mph+), producing a comprehensive 360-degree view of each railcar – including the top, sides, and undercarriage.

With its streamlined, intuitive interface, the RIP® empowers inspectors to review railcars in detail, perform thorough assessments and complete inspections faster than ever before.

Optional artificial intelligence (AI) detection capabilities take inspections to the next level by automatically identifying a wide range of potential

defects. Professionally developed AI models highlight areas of concern, issuing alerts and notifications directly to inspectors. By focusing attention on specific issues in real time, the RIP® significantly reduces inspection time while increasing accuracy.

With a track record of success, Duos Technologies' Railcar Inspection Portal is setting a new standard for how railroads conduct inspections in the digital age.

#### Features/Benefits

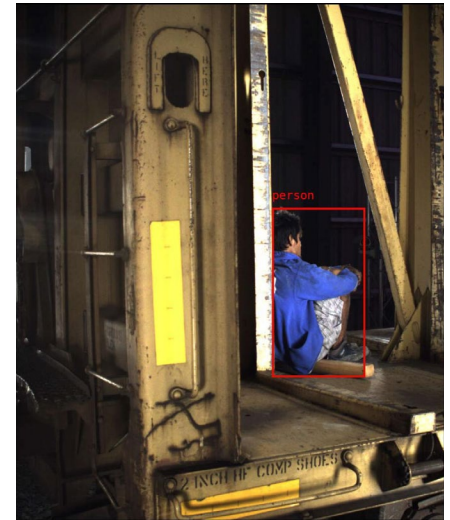
- Modular, customisable turnkey system
- Enhances safety for employees, shippers, the traveling public and enforcement personnel
- Reduces risk through derailment prevention and operational reliability
- Boosts network fluidity by cutting line-of-road delays and yard dwell time
- Maximises fleet utilisation and efficiency
- Strengthens security at borders and checkpoints by detecting illegal, unauthorised riders, concealed cargo and other hidden threats
- Proven performance: US Class I rail company benchmark study showed it is 8x more effective than manual inspection alone

### Expert AI- The Duos Difference

#### CENTRACO® + AI I Data Analysis

Who couldn't use a little help now and then?

The RIP® features a set of over forty (and growing) expertly crafted artificial intelligence/machine learning (AI/ML) models that offer just that. As the RIP® captures high-resolution images, our AI models anomalies or defects on the railcars. Detected defects are immediately reported in the CENTRACO®.



CENTRACO® is Duos Technologies’ customer-facing platform that transforms railcar inspection into a streamlined, AI-powered experience. It not only allows Duos employees to detect and confirm defects in real time, but also gives customers transparent access to results, empowering them with actionable insights that improve safety, efficiency and compliance.

Duos’ proprietary AI development and deployment framework gives clients full control over implementation, delivering dependable and efficient operations.

Our edge-based AI delivers inspection results within 60 seconds of a railcar scan – critical for avoiding delays and derailments.

Our in-house team of seasoned railcar mechanics act as subject matter experts (SMEs), ensuring highly accurate detections. Duos integrates Human-in-the-Loop technology, combining the speed of machine analysis with expert human judgment to minimise false positives.

Our ready-to-deploy AI detection library is designed to automatically pinpoint and classify critical railcar defects.

This fusion of AI and Human-in-the-Loop intelligence powers CENTRACO®, a platform capable of identifying unauthorised riders on trains, with clear image displays provided for review and analysis.

### Detection of Illegal Riders

It is important to detect unauthorised riders and

various related objects (bags, backpacks, tarps and blankets) on freight cars. The RIP® system uses overhead cameras as well as side panoramas and AI-enabled analytics to detect when an unauthorised rider or associated objects are on the top, side or ends of the freight cars. If required, the appropriate security agencies can be notified for immediate review. Illegal riders is a direct security detection which is expected to be immediately actionable. Minimal – if any – review by a qualified mechanical car inspector is required. This enhances safety, supports border security and railroad personnel and reduces risk by identifying hidden individuals in real time.

- Enhance workers and public safety by identifying hidden individuals before they cause harm
- Support immigration and border control efforts with reliable, automated detection
- Reduce liability and risk exposure by preventing unauthorised access to trains
- Improve operational efficiency by accelerating inspections and minimising delays
- With RIP®, railroads benefit from a proven system that not only automates detecting detections but also protects people, assets and critical infrastructure

Request a Duos AI Detection catalogue [here](#).



Click or scan the QR code of more information

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# AI-POWERED RAILCAR INSPECTION

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