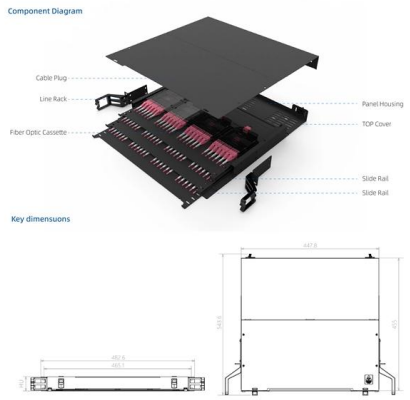
Adam Tas Corridor Energy

Optoelectronic fusion anti-tracking application in railway communication

Overview

This work introduces a fusion method that combines millimeter-wave radar and cameras in order to accurately detect obstacles inside restricted zones and anticipate their direction in real-time. In this study, we propose a real-time method for railway track detection and 3D fitting based on camera and LiDAR fusion sensing. The requirement for intelligent trains to enable real-time sensing of multi-source information throughout the entire operational process has become vital as the government aggressively encourages the digitalization, scalability, intensification, and synergistic development of rail transportation. The Federal Railroad Administration (FRA) sponsored a research team from Oklahoma State University (OSU) to assess how well Optical Fiber Sensors (OFS), specifically Fiber Bragg Grating (FBG) sensors, can monitor railroad track transitions.

Optoelectronic fusion anti-tracking application in railway communic

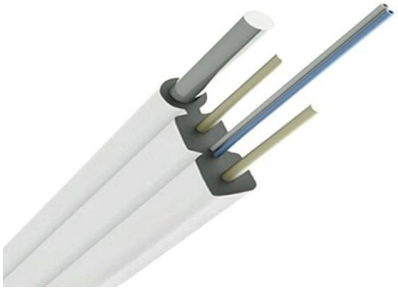


Multisensor Fusion in Optoelectronic Target Tracking Research Guide

What is Multisensor Fusion in Optoelectronic Target Tracking? Multisensor fusion in optoelectronic target tracking integrates data from radar, EO/IR, and lidar sensors using probabilistic methods and

A Method for Railway Intrusion Objects Detection with LiDAR and

Intrusion along the railway perimeter poses a significant threat to railway operational safety. To enhance railway operation safety, this paper proposes an object-level fusion detection



Intelligent Detection of Surface Defects in High-Speed

The application validation of the TrackNet model demonstrates its effectiveness in detecting surface defects on ballastless tracks, providing crucial

FusWay: Multimodal hybrid fusion approach. Application to Railway

Multimodal fusion is a multimedia technique that has become popular in the wide range of tasks

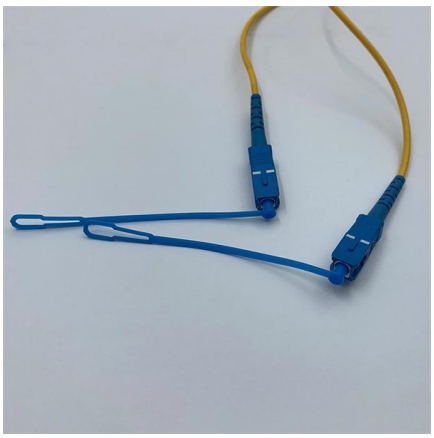
where image information is accompanied by a signal/audio. The latter may not convey highly

RAIL-MOUNTED OPTICAL FIBER SENSORS FOR

The Federal Railroad Administration (FRA) sponsored a research team from Oklahoma State University (OSU) to assess how well Optical Fiber Sensors (OFS), specifically Fiber Bragg Grating (FBG)

A Real-Time Method for Railway Track Detection and

In this study, we propose a real-time method for railway track detection and 3D fitting based on camera and LiDAR fusion sensing. Semantic



Track Damage And Obstacle Detection Using Multi Sensor Fusion

The integration of Internet of Things (IoT) technology into railway track monitoring systems marks a pivotal advancement in ensuring the safety and efficiency o

A Lightweight Camera and Lidar Fusion Framework for Railway

Intrusion along the railway perimeter poses a significant threat to railway operational safety. To enhance railway operation safety, this paper proposes an object-level fusion detection

Microsoft Word

We demonstrate our approach for a railway application, where the lateral displacement of the wheel on the rail is measured during operation. We also implemented an algorithm using template matching

Railway Traffic Object Detection Using Differential Feature Fusion

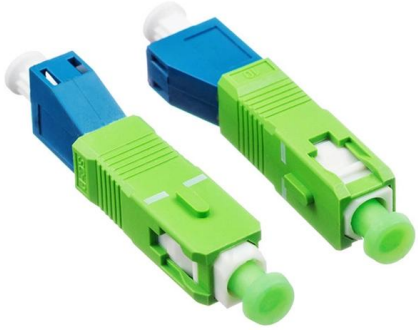
To detect these objects in railways, we proposed an object-detection method using a differential feature fusion convolutional neural network (DFF-Net).

HIGH-PRECISION TRAIN LOCALIZATION

Standard train localization is based on infrastructure with costly way-side components, supplemented by high-precision satellite navigation systems such as GNSS.

(PDF) Application of sensor fusion to railway systems

Sensor fusion significantly enhances safety and reliability in Automatic Train Control (ATC) systems. Modern railway systems require accurate position, speed, and acceleration measurements to

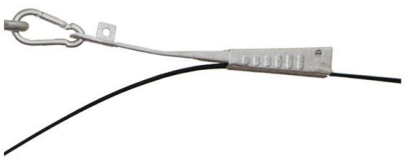


Tracking motion context of railway passengers by fusion of low-power

In this paper we develop StationSense, a novel mobile sensing solution for precisely tracking temporal stop-and-go patterns of railway passengers. While such motion context serves as

A cost effective real time rail track monitoring system

We introduce a novel approach for real-time identification of missing rail tracks, offering a promising solution to enhance railway safety and mitigate the devastating consequences of



Research on obstacle detection between train tracks based on multi

This work introduces a fusion method that combines millimeter-wave radar and cameras in order to accurately detect obstacles inside restricted zones and anticipate their direction in real-time.

A review of railway infrastructure monitoring using fiber optic sensors

This article reviews the current state-of-the-art of fiber optic sensing/monitoring technologies, including the basic principles of various optical fiber sensors, novel sensing and

Application of optical access network technology in railway

Today, with the increasing speed of railway operation, in order to strengthen people's safety and realize effective control of trains, a stable railway communication system should be established under the

Railway Positioning and Fiber Optic Sensor Fusion

Abstract This study presents a multi-sensor fusion approach for train localization by integrating GNSS, IMU, and fiber optic sensors (FOS).

An Efficient Foreign Object Recognition Model in Rail

The existing foreign object recognition methods have some limitations, such as imprecise extraction of railway regions and limited real-time performance. This study proposes a efficient

Huawei Launches Industry's First Railway Optical Communication

During the event, Huawei released the industry's first railway optical communication network solution that supports the fine-grain OTN (fgOTN) standard. The goal is to ensure secure

Research on UAV Fusion Tracking and Identification Technology in

However, the stable tracking, classification and identification of UAV targets in complex environments restricts the overall improvement of the scale application and capabilities of anti-UAV

Reliable Beam Tracking on High-Altitude Platform for Millimeter Wave

Due to the dominant line-of-sight (LOS) component of high-altitude platform (HAP) communications, tracking the high-speed railway (HSR) uplink channel commonly involves forming received beam

Rail surface defect detection using a transformer-based network

The detection of Rail Surface Defects (RSDs) plays a critical role in railway track maintenance. Traditional image processing methods exhibit limitations due to their intricate design

Off-Network Communications For Future Railway Mobile Communication

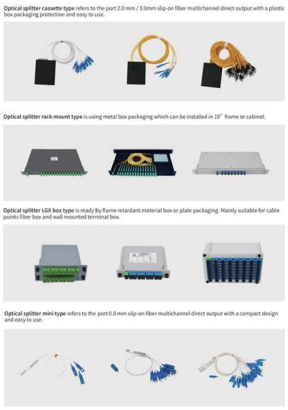
Off-network communication refers to a direct communication mode between transmitter and receiver without passing the network, e.g., direct train-to-train (T2T) communication and direct train-to-ground

(PDF) Improved kernelized correlation filter algorithm

In order to improve the tracking accuracy and real-time performance of the optoelectronic tracking system, an improved kernelized correlation filter

A review of railway infrastructure monitoring using fiber optic sensors

Application of FOS for train operation and structural health monitoring is briefly discussed. Aspects of the FOS design, installation, performance/accuracy, signal processing and data analysis



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