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# Trinear Unveils Single-Axis "Trinear Optical Fusion Camera Technology"

**Revolutionizing Edge AI Perception with Parallax-Free, Full-Spectrum Imaging for Autonomous Systems**

**Las Vegas, NV – January 6, 2026** – Trinear Inc., a pioneer in next-generation AI perception systems, today announced the launch of its groundbreaking **Trinear Optical Fusion Technology**. This novel imaging architecture simultaneously captures Visible, Near-Infrared (NIR), and Far-Infrared (FIR/LWIR) spectrums along a **single optical axis**, eliminating the physical limitations of traditional camera systems.

## **The Challenge: The "0.0035%" Blind Spot**

Standard RGB cameras used in modern autonomous vehicles and surveillance systems capture less than **0.0035%** of available optical information. This limitation creates severe perception blind spots in critical conditions such as night, dense fog, and rain, and smoke, significantly compromising AI reliability.

Furthermore, existing multispectral solutions rely on side-by-side sensors, which introduce **parallax errors** and **temporal misalignment**. Correcting these physical discrepancies requires massive computational resources, creating a bottleneck for real-time Edge AI.

## **The Solution: Trinear Optical Fusion Technology**

Trinear solves these challenges not through software patching, but at the physical "optical" level:

### **1. Single-Axis Architecture (Zero Parallax)**

Trinear's proprietary and patented optical design aligns all spectral bands onto a single optical path. This ensures pixel-perfect spatial alignment across all wavelengths, physically eliminating parallax errors without the need for software correction.

## 2. True Real-Time Edge Processing

As data fusion occurs optically before digitization, the system eliminates the need for heavy post-processing calibration. This results in near-zero latency, enabling high-speed, low-power Edge AI inference suitable for safety-critical control systems.

## 3. Unmatched Environmental Robustness

By combining the shape/color of Visible light, the material properties of NIR, and the thermal signatures of FIR, Trinear enables machines to "see" clearly in total darkness, through smoke, and across complex weather conditions.

## Market Impact and Commercial Readiness

Tinear is targeting industries where safety and real-time reliability are non-negotiable:

- **Autonomous Mobility:** Serving as the primary sensor for adverse weather navigation.
- **Defense & Security:** Providing superior target detection through obscurants and camouflage.
- **Infrastructure & Disaster Response:** Enabling rapid situational awareness for gas leaks and fire hazards such as wild fire.

The technology has already gained traction, having been applied for **SBIR programs** with integrators in US and is currently in active technical discussions with major **Japanese Automotive OEMs**.

## CEO Commentary

"We haven't just added more sensors; we have redefined the very mechanism of how machines view the world," said Yukisada Dave Fukaya, CEO of Trinear Inc. "By integrating all spectral information at the lens level—the entry point of light—we provide the pristine, aligned data that AI models have been starving for. This technology represents the missing link for achieving true autonomy."

## White Paper Availability

For a deep dive into the technology, the full white paper is available for download at: [https://trinear-inc.com/download/TRINEAR%20 WHITE \\_%20PAPER\\_GNRL\\_V1.zip](https://trinear-inc.com/download/TRINEAR%20WHITE_%20PAPER_GNRL_V1.zip)

## **About Trinear Inc.**

Trinear Inc. is a deep-tech startup bridging the gap between physical optics and Artificial Intelligence. Through its proprietary and patented "Optical Fusion Technology," Trinear overcomes the limitations of conventional vision systems to provide reliable, full-spectrum "machine eyes" for the autonomous era.

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