

# FunnyTech21

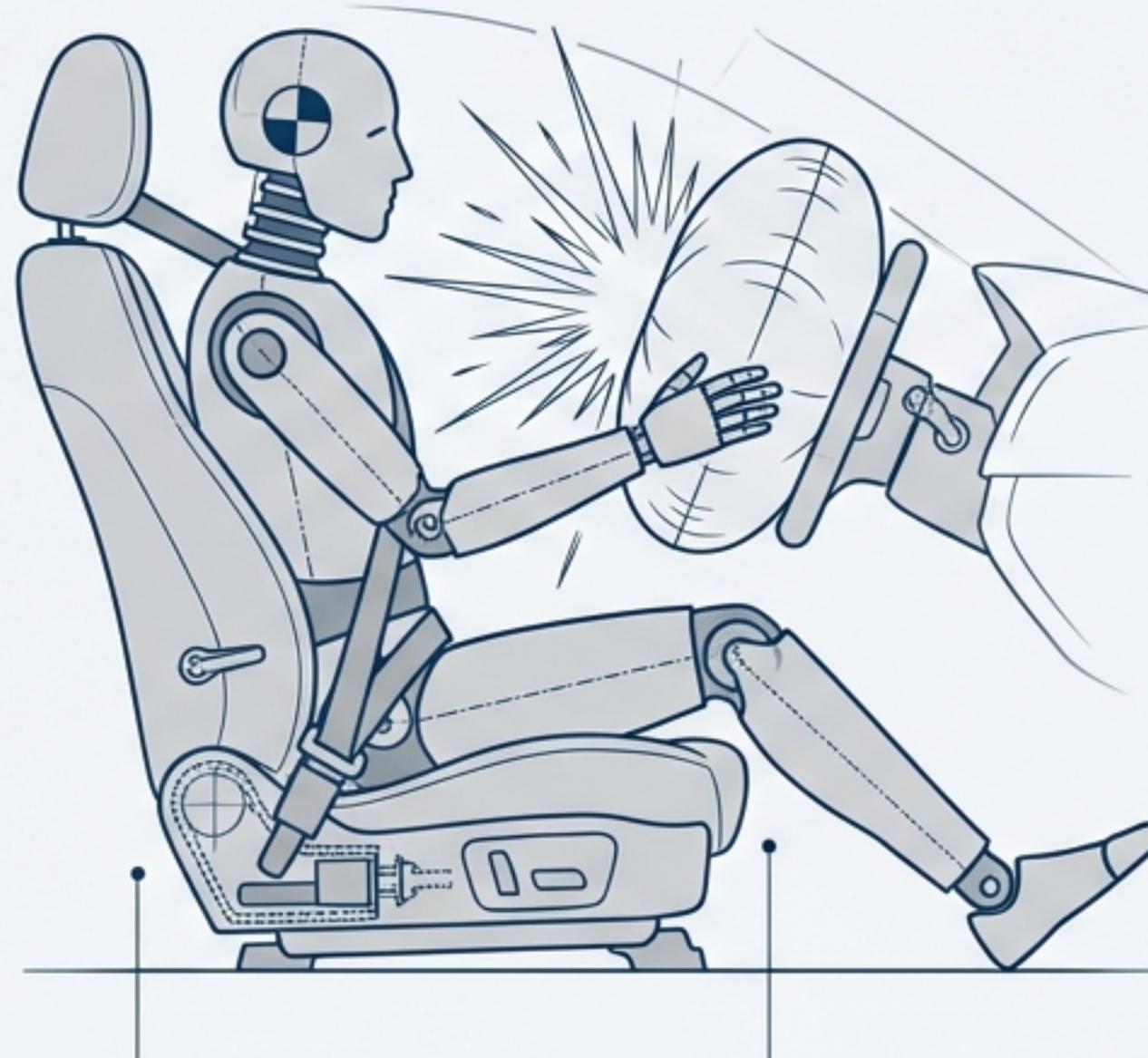


## The Future of In-Cabin Safety is Here.

The AI platform that sees, understands, and protects the driver.

# The Paradigm Shift: From Reactive to Proactive Safety

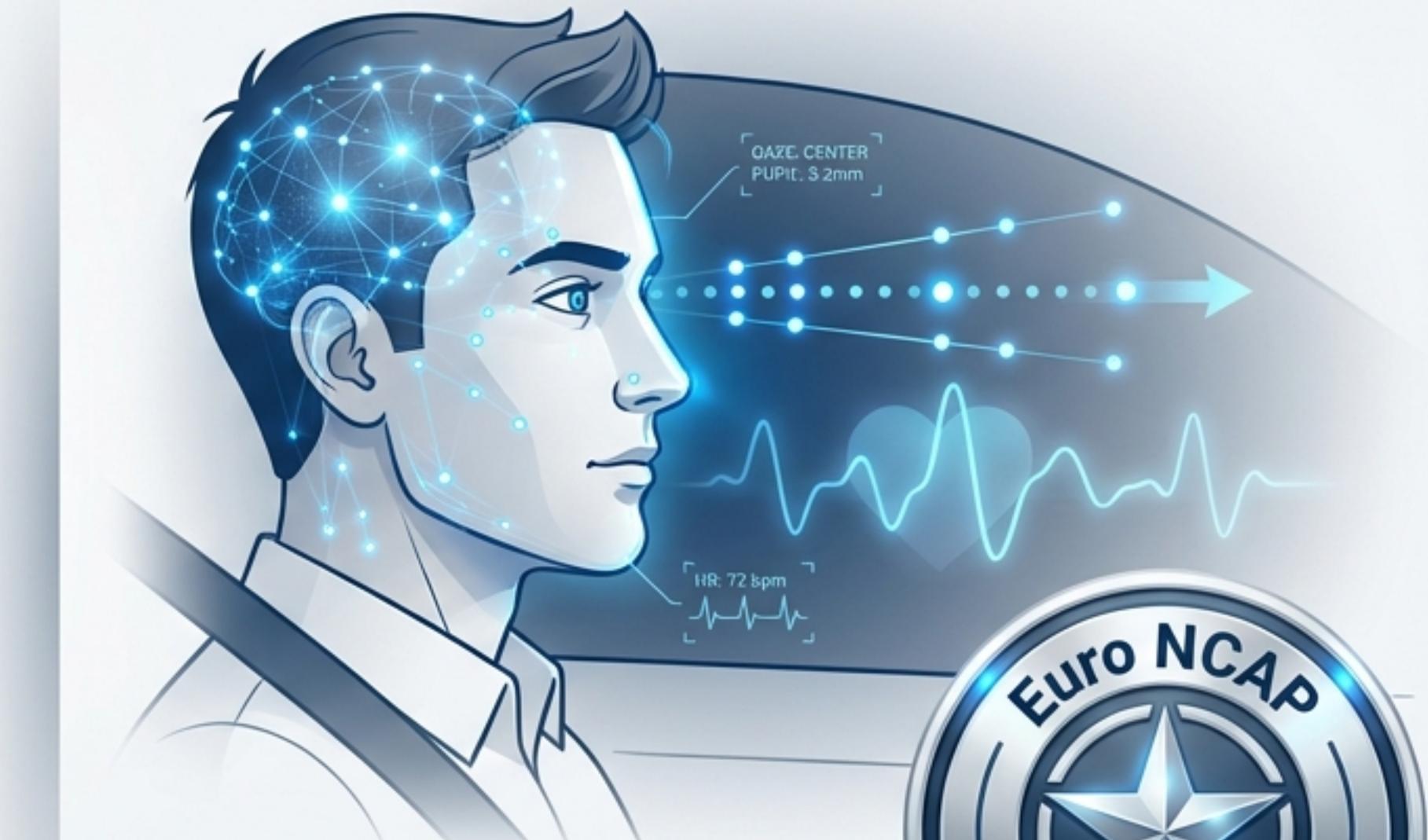
## REACTIVE SAFETY



Focus on structural integrity  
and restraint systems.

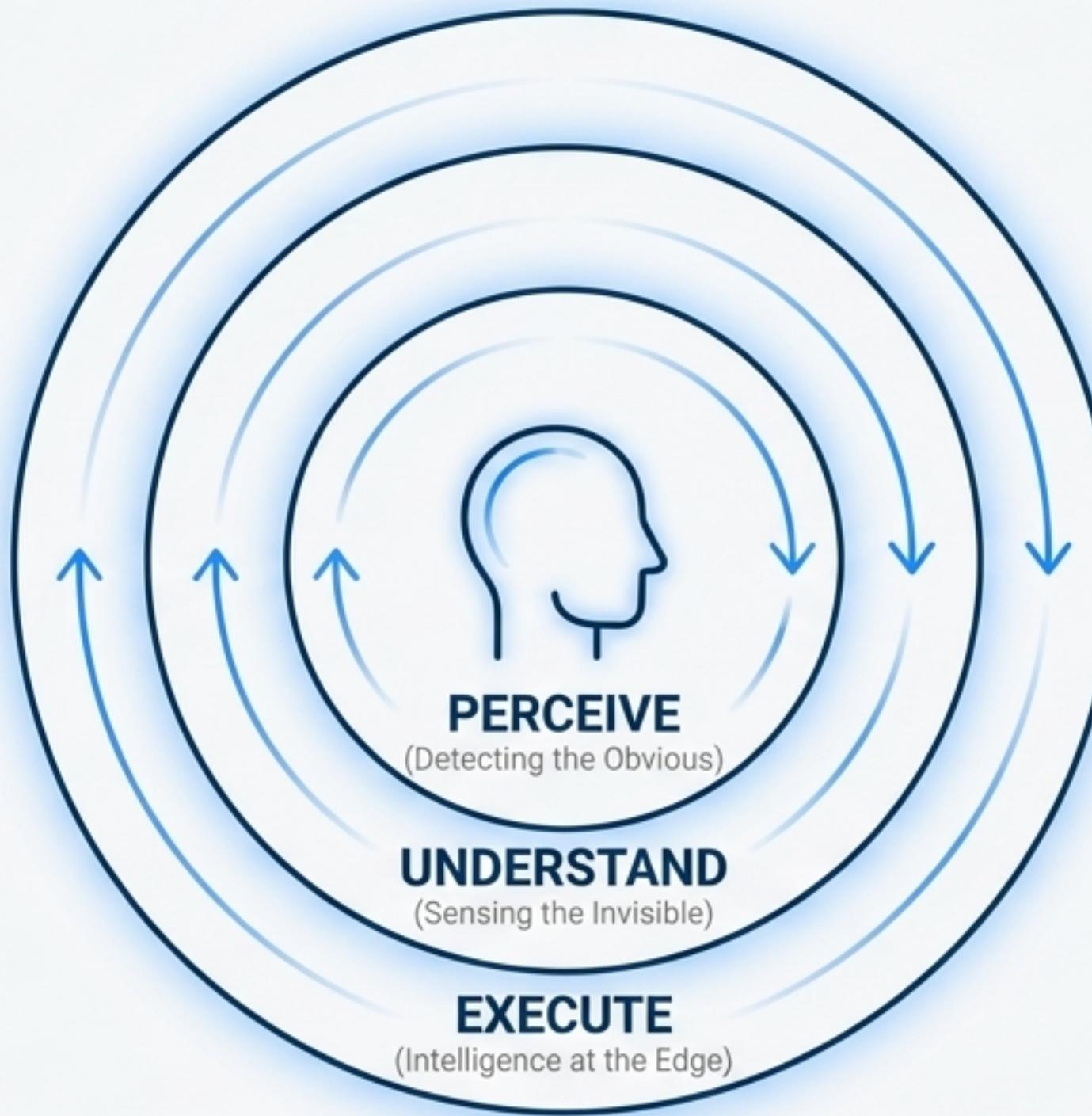
The industry's focus has moved from surviving a crash to preventing it entirely. Driver state is the new critical data point.

## PROACTIVE SAFETY



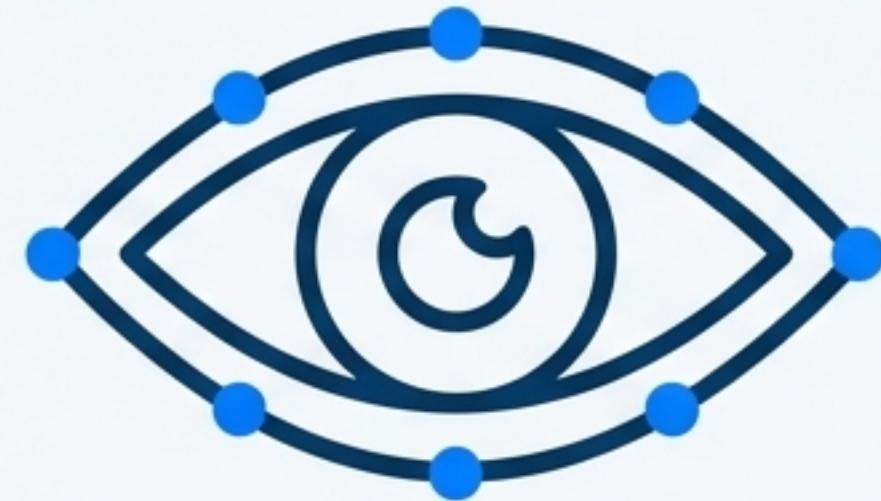
Focus on driver monitoring, ADAS, and AI.  
Prevents collisions BEFORE they happen.

# Our Vision: The Sentient Cockpit



We built our platform on three core pillars to create a comprehensive understanding of the driver in real-time.

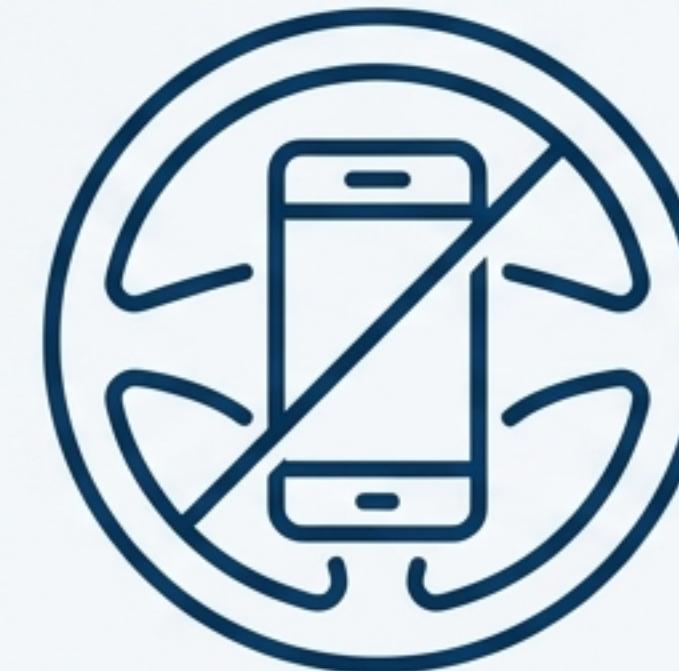
# Pillar 1: PERCEIVE — Precision in Detecting the Obvious



## Drowsiness & Microsleep Detection

**Key Tech:** PERCLOS analysis using **EAR (Eye Aspect Ratio)** with personalized **Dynamic Thresholding**.

**Benefit:** Pinpoints microsleep events lasting just **1.0 second**.



## Distraction & Behavior Monitoring

**Key Tech:** **3D Gaze Vector Estimation** (detects  $>\pm 15^\circ$  deviation) and **YOLOv8n** for real-time object detection (cell phone, bottle).

**Benefit:** Instantly flags phone use, eating, and hands-off-wheel events (**>15s**).

# Pillar 2: UNDERSTAND – Sensing the Invisible Driver

## Behavioral Cues

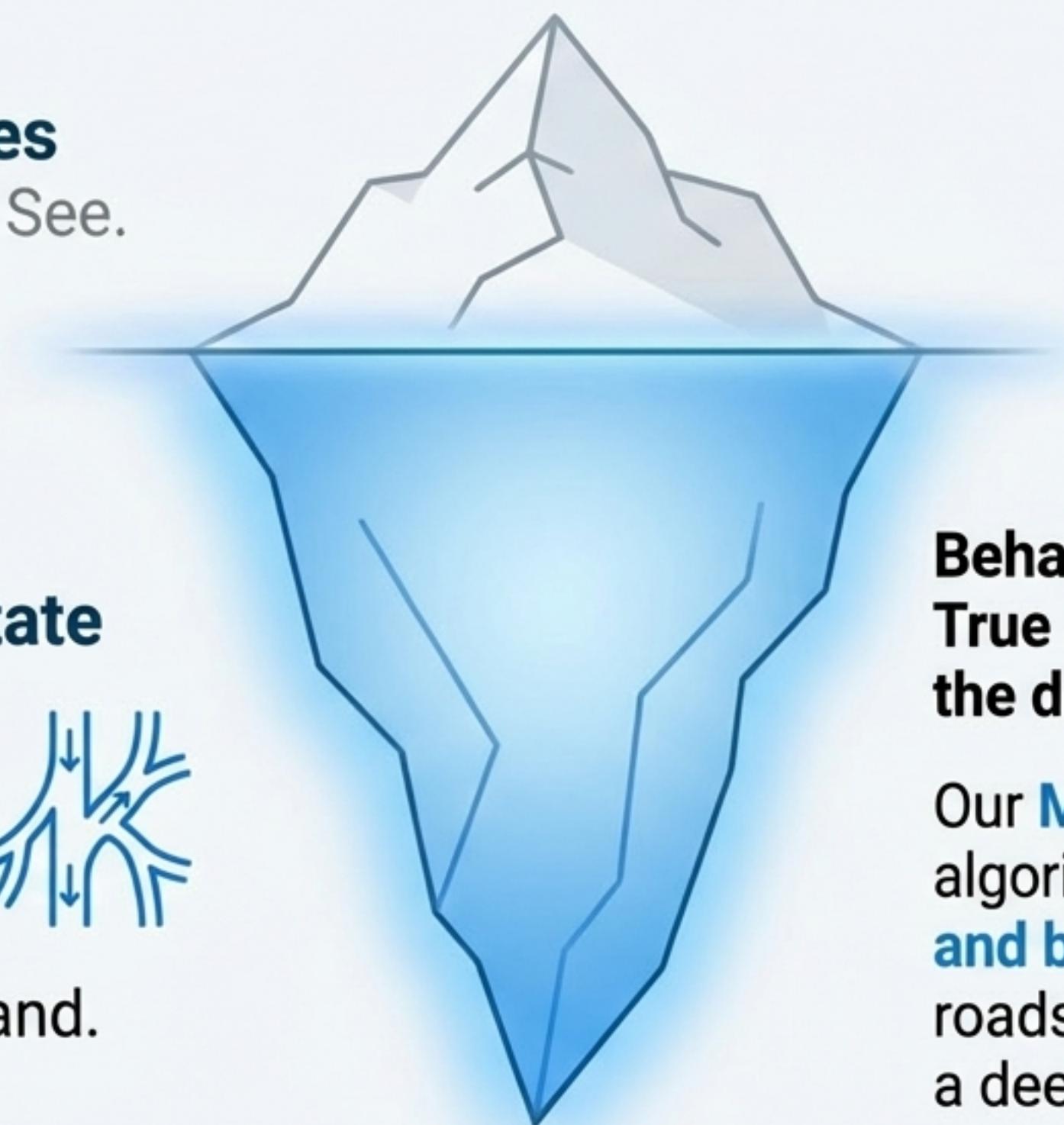
What Competitors See.



## Physiological State



What We Understand.



A large iceberg is shown, with its visible portion above the waterline representing "Behavioral Cues" and its hidden portion below the waterline representing "Physiological State". This visual metaphor emphasizes that understanding the full driver profile requires looking beyond surface-level behavior to the underlying biological state.

**Behavior is only half the story.  
True safety requires understanding  
the driver's biological state.**

Our **Motion-Compensated CHROM** algorithm provides a stable **heart rate** and **blood flow signal**, even on rough roads where others fail. This unlocks a deeper level of insight.

# The Triple-Fusion Engine: Our Unfair Advantage

## Pupillometry



Analyzes involuntary pupil tremors (**Hippus** at 0.3-0.5Hz) linked to impairment.

## Oculomotor Analysis



Measures spontaneous eye jitter (**Nystagmus**) by calculating Gaze Vector residuals.

## rPPG Blood Flow



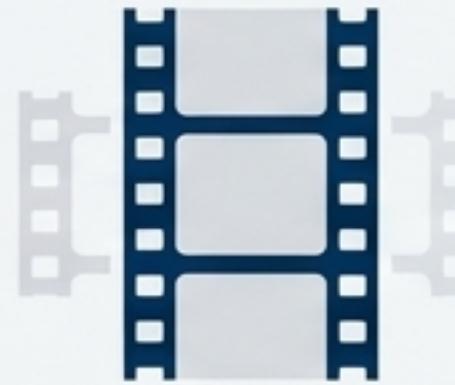
Detects sudden **Blood Flow Surges** via Pulsatile Amplitude changes post-ingestion.

## ML + Rule-Based Fusion



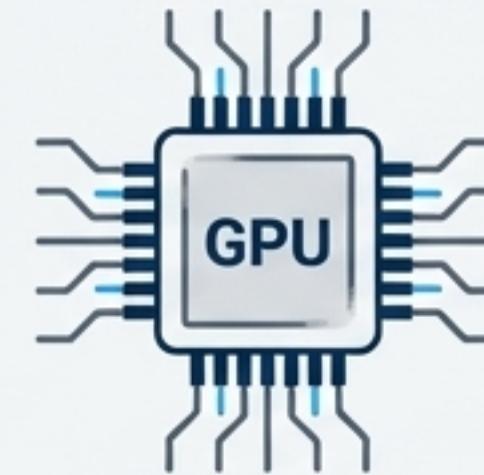
By fusing three independent biological markers, we deliver impairment detection that is robust, reliable, and scientifically validated.

# Pillar 3: EXECUTE — Intelligence & Efficiency at the Edge



## Adaptive Frame Skip

Guarantees real-time performance (30fps) for critical functions by dynamically managing GPU load (>85%).



## CUDA Parallel Processing

Reduces CPU load by 50% by offloading preprocessing to the GPU.



## TensorRT FP16 Acceleration

Boosts inference speed by 6-10x across all deep learning models.



## Secure Face ID

Uses ArcFace and MiniFASNet for fast, spoof-proof driver identification and profile loading.

**Maximum insight, minimum hardware requirements.**

# The Proof: Measurable Impact & Market-Ready



## Reduced Safety Incidents

Pilot programs show a XX% reduction in safety-critical events.



## Future-Proof by Design

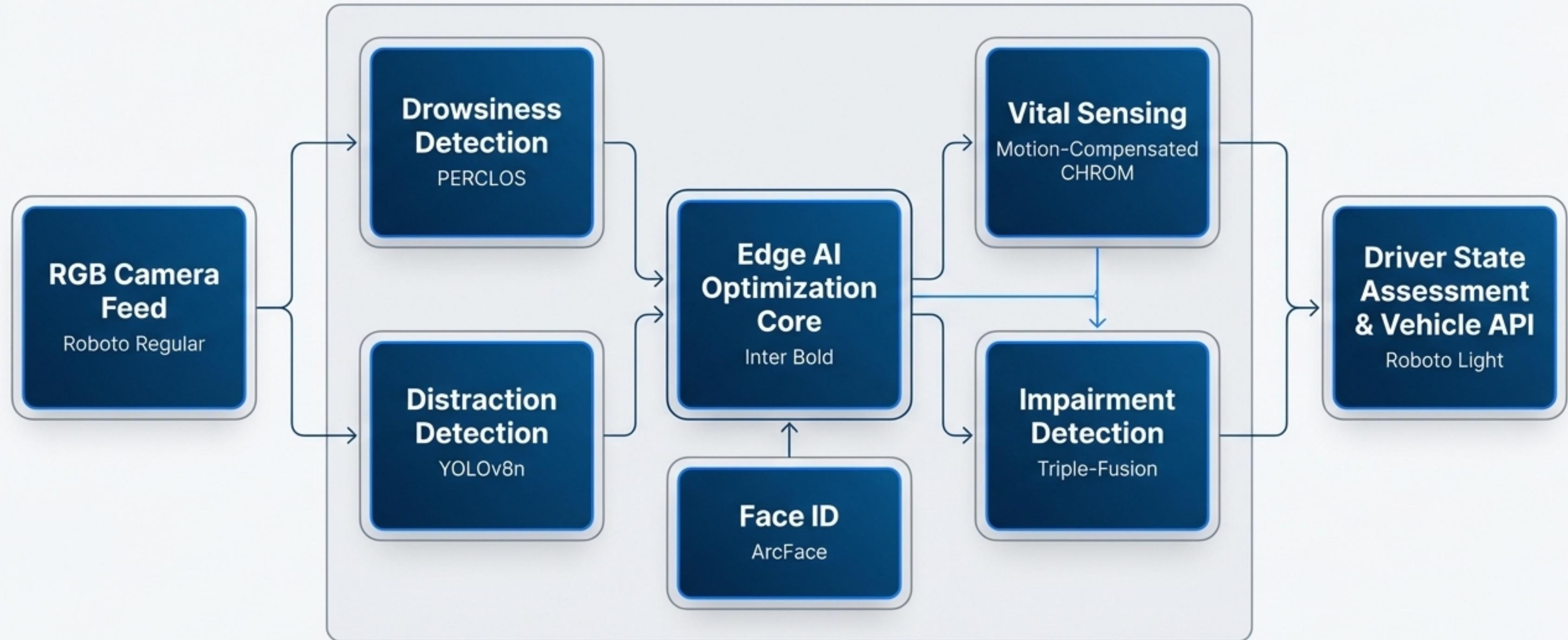
Engineered to meet and exceed upcoming global safety mandates.



## Trusted by Innovators

Currently in pilot with leading automotive OEMs and Tier-1 suppliers.

# The Complete Platform Architecture



# FunnyTech21

## Partner with Us to Build the Future of Mobility

Request a live demo to experience the next generation of driver monitoring in action.

Email: [ioplanet@funnytech21.com](mailto:ioplanet@funnytech21.com) | Website: [www.funnytech21.com](http://www.funnytech21.com)