



Suhas Bhairav

AI Cold Chain Temperature Leak Investigator

Automate anomaly detection to locate cooling failures in real time.

Turn sensor data into precise leakage timestamps and locations with AI-assisted workflows.

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Incident Flow Overview

This page defines the end-to-end flow for AI-assisted cold chain investigations. It clarifies automations, human review points, and data requirements.

Key move Start with a small, single-ship pilot to validate data quality before broad rollout.

PRACTICAL CHECKLIST

- 01** Ingest temperature readings from asset sensors, logs, and firmware telemetry at cargo handoff and in transit.
- 02** Apply time-series anomaly detection to flag excursions beyond defined thresholds.
- 03** Automatically correlate anomalies with location, asset, and route data.
- 04** Present a staged incident report with exact timestamp, container, and sensor identifiers.
- 05** Flag human review points where data is missing or ambiguous.
- 06** Provide auditable logs and provenance for regulatory compliance.

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Data, Tools & Automation

Identify data sources, required tooling, and human review gates. Define what to automate versus what stays under expert review.

Key move Protect data integrity; every alert must be traceable to a specific sensor and timestamp.

PRACTICAL CHECKLIST

- 01** Sensor data: temperature, humidity, GPS, timestamp, container ID, and asset metadata.
- 02** Data quality checks: synchronized timestamps, missing values, and known sensor outages.
- 03** Automation scope: detect excursions, annotate probable failure windows, and produce reports.
- 04** Role separation: AI handles detection; humans review uncertain cases and finalize investigations.
- 05** Data privacy and retention: only necessary fields for audits; purge after retention period.
- 06** Tools: time-series databases, ETL pipelines, and a lightweight AI inference layer.

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Adoption Plan & Metrics

Outline a practical, weekly rollout with ownership and approvals. Define metrics to measure impact and safety.

Key move Lock critical thresholds in a sandbox first; avoid live deployment until accuracy is proven.

PRACTICAL CHECKLIST

- 01** Week 1: assemble a cross-functional pilot team - QA, operations, and IT - plus data quality baseline.
- 02** Week 2: inventory data sources; document owners, access, and data refresh cadence.
- 03** Week 3: implement basic anomaly detector on a single facility; monitor false positives.
- 04** Week 4: establish human review gate and incident reporting template.
- 05** Month 2: expand to additional facilities; refine thresholds; add location-based qualification.
- 06** Ongoing: maintain data quality, measure incident detection rate, mean time to identify cause.
- 07** Governance: quarterly audits, privacy compliance, and changelog.

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ABOUT THE CREATOR

Suhas Bhairav

I build AI systems that combine distributed architecture, retrieval, knowledge graphs, security, and practical workflow design. My focus is AI that can be used repeatedly by real teams: understandable, reliable, and grounded in the work people already do.

EXPERTISE

- Principal systems architecture and applied AI engineering
- Production-grade AI systems, agentic workflows, RAG, and knowledge graphs
- Full-stack workflow applications across AWS, Google Cloud, Azure, on-premise, and hybrid environments
- Practical AI implementation patterns for automotive, manufacturing, finance, logistics, cybersecurity, sales, and customer operations
- Security, governance, observability, approvals, and failure-mode thinking for operational AI systems

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