

FEV Signature Solutions

Understand your vehicle faults in real-time operations

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On board diagnostics to detect a disrupting event causing system's critical failure

FEV offers

- A fit for use customizable in-vehicle diagnostic models for real-time fault event detection
- Approach based on fault event modeling for critical events, achieving significant reduction in false alarms reference to standard rule engine-based diagnostic algorithms
- Fault score model for generation of alarms/alerts at different levels based on the persistency & magnitude of fault
- Thin model, designed to work for edge-analytics application
- Quite unified generic and extendable approach based on multi-input multi-output event model, almost independent of system or component specifications

Why FEV

- With over 45 years of experience in mobility, FEV has software functions applied to various mobility applications and continuously optimized throughout transforming to Intelligent Mobility
- Robust algorithm with industry proven framework deployed for multiple customer requirements
- Self-learning system capable of adapting to new faults and failure events, supporting multiple fault scenarios for enhanced diagnostics.
- Innovative IP solution specially designed for multi-input / multi-output system



Reference projects

SYSTEM/OPERATION FAILURE DETECTION

Fault detection model customized for Commercial vehicle (Asian OEM)



- Li-ion battery pack thermal runaway detection at on-set of fault for commercial vehicle
- Battery pack short circuit detection at on-set of fault

Fault detection model customized for Passenger vehicle (Asian OEM)



- Vehicle drive to neutral fault detection based on electrical characteristics around fault event
- Electric motor temperature fault detection
- Voltage and temperature fault detection for battery pack

Specific use cases:

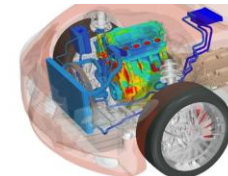
- Catastrophic breakdowns detection due to excessive heating in bearings



- Ruptured brake line detection causing malfunctioning master cylinder



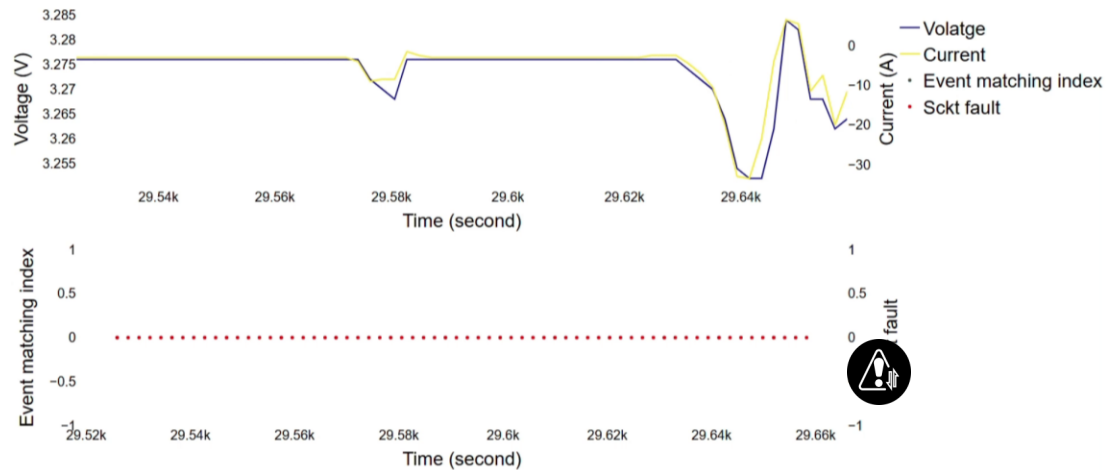
- Critical failure detection in the coolant system causing engine overheating



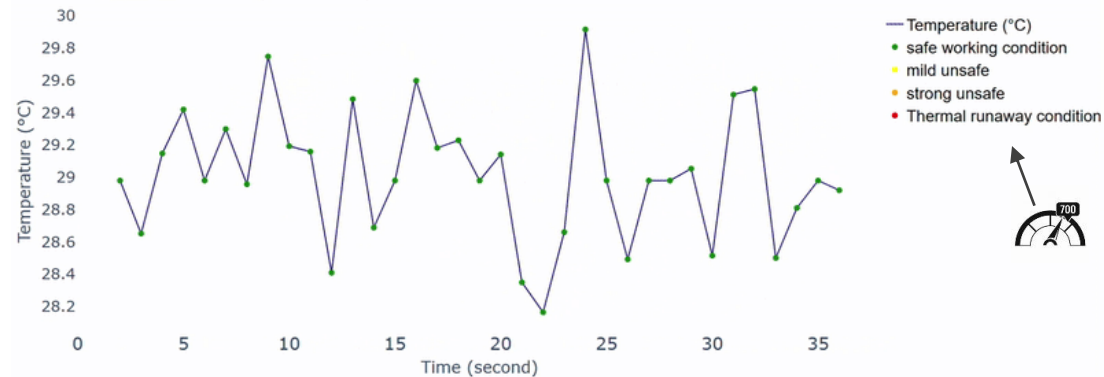
Supported functions and features

USE CASES FOR BEV BATTERY PACK

Short circuit detection



Thermal runaway detection



Fault detection: Early fault inference at event onset, enabling faster detection than rule-based diagnostic algorithms



Fault identification: Statistical inference based on fault characteristics, enabling specific fault detection independent of normal behavior deviation



Fault score: Fault progress ranking based on maturity enable generation of different levels of alarms



Robust algorithm based on multi-input multi-output system characteristics



Real-time application: Ultra-thin algorithms and models – Best suited for on-edge analytics in real-time operation



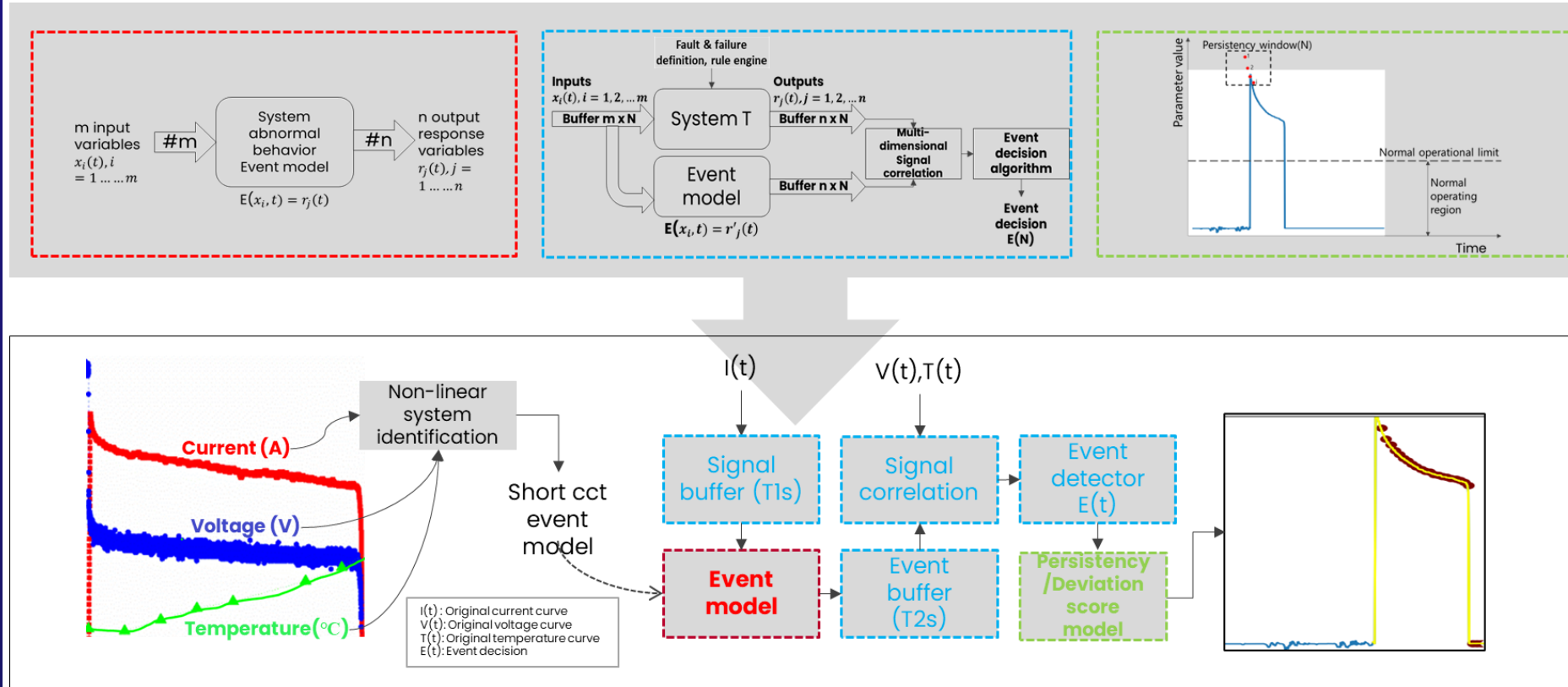
Versatility: Unified algorithm architecture for diverse fault models, enabling faster solution development and deployment

System/operation failure detection

- Detection almost at the onset of failure event
- Modelling of fault event rather than physical system
- Fault event data used to model fault event

SHORT CIRCUIT EVENT DETECTION IN BEV BATTERY PACK

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Patent application

IN202511084437 - Critical event detection for failures in physical system

Get in touch with us for further information



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