IFAC SAFEPROCESS 2027 List of Keywords

AI-enhanced FDI methods	Integrated model and data based FDI
	Knowledge discovery
	Physics-informed learning FDI
	Knowledge-based diagnosis
Data-driven diagnosis methods	Machine learning based FDI
	Deep learning based FDI
	LLM based FDI
	Safe learning
	Hybrid model learning
	Anomaly detection
	System identification
Model-based fault diagnosis	Event and fault detection
	Fault isolation and root cause analysis
	Linear model based FDI
	Nonlinear model based FDI
	Structural analysis methods
	Set-membership FDI methods
	FDI for discrete event systems
	Logic model based diagnosis
Statistical methods	Filtering and change detection
	Filtering and estimation
	Signal and identification-based methods
FDI and FTC Architectures	Distributed
	Decentralized
	Coordinated
	Event-driven
	Multi-agent
Properties for diagnosis	Diagnosability analysis
	Predictability
	Detectability and Manifestability
Explanation and Diagnosis	Anomaly and incident explanation
	Diagnosis explanation
Condition and health monitoring	Test selection
	Active diagnosis
	Structural health monitoring
Prognostics and predictive maintenance	Remaining useful life (RUL) prediction
	Degradation modeling
	Physics-based vs data-based prognostics
	Predictive maintenance strategies
	Maintenance policies
	Strategies for ageing and deterioration
Safety and security by design	Fail-Safe Mechanisms
	Safety Assurance
	Redundancy and resilient architectures
	Proactive risk assessment
Cybersecurity for cyberphysical systems	Attack detection
	Attack isolation
	Attack mitigation
	Attack prevention
Fault-tolerant and resilient control	Fault tolerant estimation
	Fault accomodation
	Reconfiguration strategies
Health-aware control	Control and Health Monitoring co-Design
	Self-healing control
	Health-aware optimization
Reliability, availability, maintainability and safety	Reliability and risk analysis
	Reliability Engineering
	Reliability Centered Maintenance
	Availability Modeling
	Design for maintainability
Applications	Transportation systems
	Intelligent autonomous vehicles
	Automotive
	Aerospace
	Network systems
	Mechatronic systems
	Marine systems
	Chemical processes
	Mining, Mineral and Metal Process
	Power plants and power systems
	Energy systems
	Education
	Other applications