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(57) Abstract :
Assessment of the current operating conditions and prediction of future insecurity is crucial to ensure secure operation of bulk power systems. Real-time assessment of dynamic security requiresfast and efficient computations. The existing methods of power system dynamic security assessment are computationally heavy and slow, making them unsuitable for online and real-time computation. Pattern recognition and machine learning (ML) approach can be a viable alternativeto the existing computation-intensive methods to recognize the correlation between system'scurrent operating conditions and itsfuture dynamic security state. This paper presentsa fast and reliable framework for dynamic security assessment (DSA),which is expectedto fulfil real-time operational requirements of modern power systems and mitigate possible security challenges. DSA typically considers severe disturbing events in power system, which may lead to potentially unstable or quasi-stable state of operation for long duration, resulting unintended triggering of system's protection and isolation mechanisms like relays and circuit breakers, which may lead to cascaded tripping of major equipment and system outages eventually risking the system security.

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