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(54) **TRANSIENT STABILITY ASSESSMENT METHOD FOR AN ELECTRIC POWER SYSTEM**

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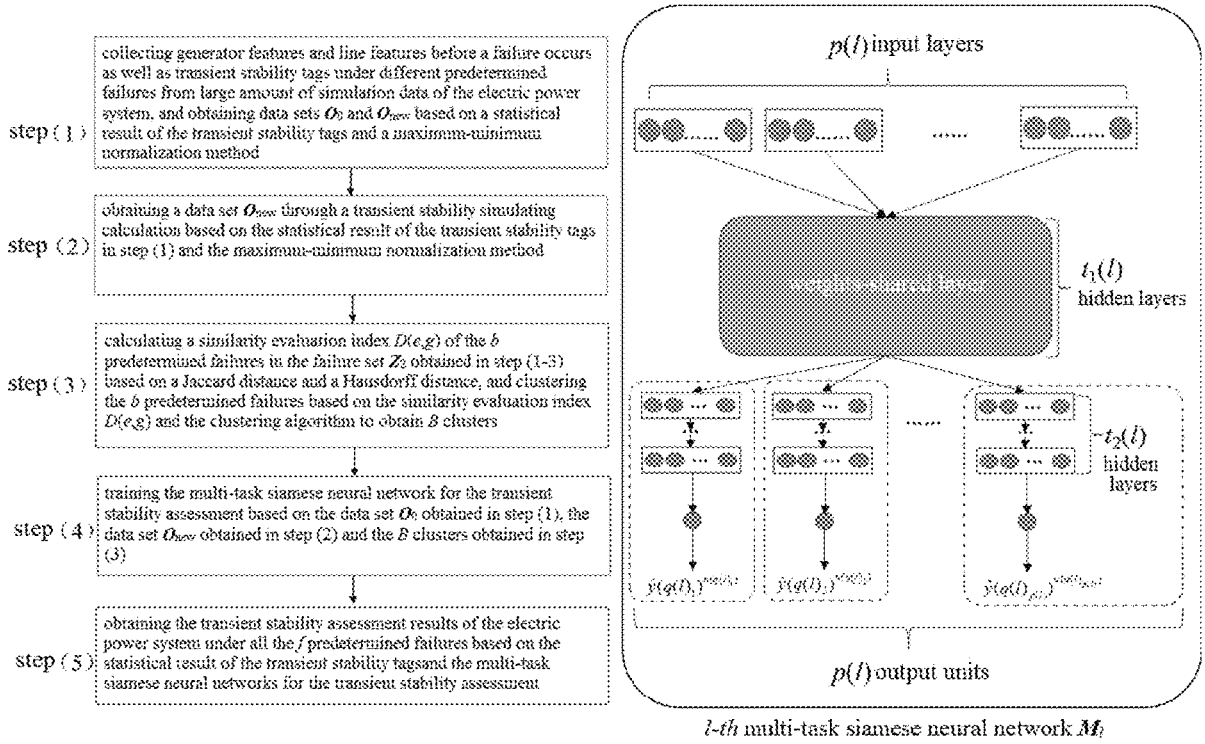
(57) **ABSTRACT**

A transient stability assessment method for an electric power system is disclosed. Transient stability tags and steady-state data of the electric power system before a failure occurs are collected from transient stability simulation data. Data sets under different predetermined failures are obtained based on a statistical result of the transient stability tags and a maximum-minimum method. A similarity evaluation index between different predetermined failures is constructed based on a Jaccard distance and a Hausdorff distance. Different predetermined failures are clustered based on a clustering algorithm. A parameters-shared siamese neural network is trained for different predetermined failures in each cluster to obtain a multi-task siamese neural network for the transient stability assessment. Transient stability assessment results of the electric power system under all the predetermined failures are obtained based on the statistical result of the transient stability tags and the multi-task siamese neural network for the transient stability assessment.



l-th multi-task siamese neural network M_l