



FAULT CLASSIFICATION AND FAULT LOCATION USING ANN FOR MEDIUM VOLTAGE CABLES: DESIGN AND IMPLEMENTATION

HASSAN KHORASHADI-ZADEH AND ZUYI LI

Department of Electrical and Computer Engineering

Illinois Institute Technology

3301 S. Dearborn St.

Chicago, IL 60616 USA

Email: hkhorash@iit.edu, lizu@iit.edu

ABSTRACT—A novel application of artificial neural network as a pattern classifier to fault classification and fault location for medium voltage cables is demonstrated in this paper. Different faults on a protected cable should be classified and located correctly to ensure the reliable operation of power systems. The proposed scheme is insensitive to fault type, fault resistance, fault inception angle, and system source configuration. The proposed scheme has been implemented on a digital relay and its behavior is investigated on a simulated power system model. The novelty of this work compared with other artificial intelligence applications is the design and hardware implementation of the proposed scheme in fault classification and fault location. Studies show that the proposed scheme is very accurate in both fault classification and fault location.

Key Words: Artificial neural network, Cable, Fault classification, Fault location.