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The Role of Deep Learning in Speech-Based Emotional Intelligence Systems

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Abstract: *Pattern recognition and natural language processing are emphasizing voice emotion recognition. Deep learning algorithms have improved spoken emotion identification in recent years. Some speech emotion recognition research lacks a broad comparison of deep learning models and methodologies. This makes identifying the best tactics and their pros and cons difficult. Thus, this work reviews deep learning methods for voice emotion identification in detail. The method is a comparative literature assessment of relevant articles on data collecting and deep learning. EMO-DB, RAVDESS, TESS, CREMA-D, IEMOCAP, and Danish Emotional Speech Databases will be explored. German-speaking EMO-DB and Danish-speaking Danish Emotional Speech Database are the only datasets not in English. These datasets mostly returned basic emotions like happiness, grief, neutrality, disgust, surprise, and fury. Deep learning has enhanced spoken emotion recognition, according to the study. The CNN-RNN combination is a complicated deep learning model that extracts acoustic information to reliably recognize speech emotion. This will effect contact center analytics, emotional computing, human-computer interaction, psychological research, and clinical diagnostics.*

Keywords: Deep learning, deep neural network, convolutional neural network, Speech emotion recognition using recurrent neural networks