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(54) **RECURRENT NEURAL NETWORKS AND SYSTEMS FOR DECODING ENCODED DATA**

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(57) **ABSTRACT**

Examples described herein utilize multi-layer neural networks, such as multi-layer recurrent neural networks to decode encoded data (e.g., data encoded using one or more encoding techniques). The neural networks and/or recurrent neural networks have nonlinear mapping and distributed processing capabilities which are advantageous in many systems employing the neural network decoders and/or recurrent neural networks. In this manner, neural networks or recurrent neural networks described herein are used to implement error correction coding (ECC) decoders.