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(54) **MOTOR CONTROL CIRCUIT**

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(57) **ABSTRACT**

According to various embodiments, a motor control circuit is described having a controller configured to determine values of a plurality of control voltages for a motor. The motor control circuit includes one or more current sensors configured to measure a plurality of operation currents of the motor and a neural network having a multi-layer perceptron architecture. The neural network is trained to estimate a rotor position of the motor for a current control cycle. The controller is configured to determine values of the plurality of control voltages for the current control cycle using the estimate of the rotor position.