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(54) Title: HYBRID QUANTUM-CLASSICAL AUTOENCODER FOR CYBERSECURITY ANOMALY DETECTION

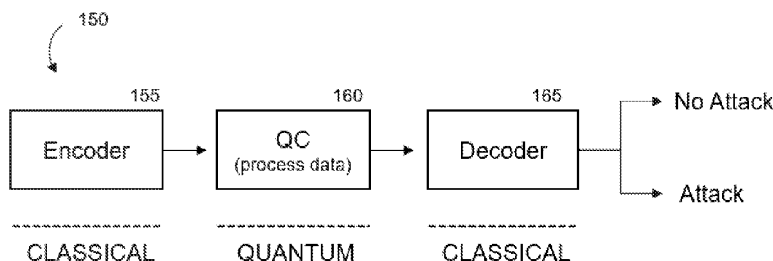


FIG. 1B

(57) Abstract: In a hybrid quantum-classical setup, some computations are performed in quantum computers, and some are performed in classical computers. Disclosed herein are systems and methods for detecting an anomaly (i.e., cyberattack) using a hybrid quantum-classical autoencoder. In aspects, the methods can include (a) constructing an input for an input layer, (b) training a first autoencoder, (c) constructing an encoder with the trained weights layers, (d) constructing and configuring a quantum circuit, (e) adding the quantum circuit to the encoder, (f) constructing a decoder, (g) constructing a second autoencoder with the encoder and the decoder and (h) training the second autoencoder. The methods are superior to conventional methods that rely solely on classical machine learning.

