ing the matrix $M_V$ such that the above argument could be applied. However, we obtained a $[[16, 6, 7; 10]]$ EAQEC code by applying the random search algorithm for the encoding optimization procedure. How to directly construct a matrix $M_V$ that leads to EAQEC codes with high minimum distances is a subject of ongoing research.

When the complexity becomes large, it is almost impossible to optimize over all $2^{2ck}N(r, c)$ encoding operators. The random search algorithm seems to be the only method to achieve good (but suboptimal) results for EAQEC codes. For different parameters $n, k, c$, the merit function should be carefully chosen. The best choice of merit function for a given application is also a subject of future work. A search algorithm for specific EAQEC codes could be developed. While the encoding optimization procedure in this paper applies to a standard quantum stabilizer code, it is possible to construct a similar encoding optimization algorithm for adding ebits to other EAQEC codes that have ancilla qubits which are not ebits. Much work remains to be done in finding the best possible EAQEC codes for different applications.

# References


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