

Classical and Quantum devices to train Learning Models

Mariano Caruso^{1,2,3}

Clara Stampa Guilarte⁴, Luis Miguel Nieto Calzada⁴

¹ FIDESOL, 18016, Granada, Spain.

² UGR, Universidad de Granada, 18071, Granada, Spain.

³ UNIR, Universidad Internacional de La Rioja, Logroño, Spain.

⁴ UVA, Universidad de Valladolid, 47011, Valladolid, Spain

mcaruso@fidesol.org

References

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- [2] Tao Xin, Shijie Wei, Jianlian Cui, Junxiang Xiao, Iñigo Arrazola, Lucas Lamata, Xiangyu Kong, Dawei Lu, Enrique Solano, and Guilu Long, Phys. Rev. A 101 (2020), 032307.

Abstract

The increasing number of parameters in machine learning models poses a substantial bottleneck in their efficient training, leading to a disproportionate utilisation of resources, including energy and computational time. We propose an approach to tackle this problem in the context of supervised machine learning, based on the construction of purpose-built computing machines that address this task. We outline two solutions for this approach based on classical circuits and another based on quantum circuits.

Figures

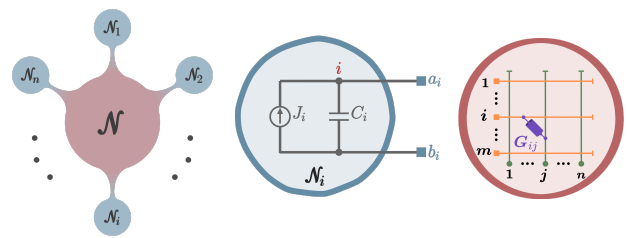


Figure 1: Classical circuit implementation for training.

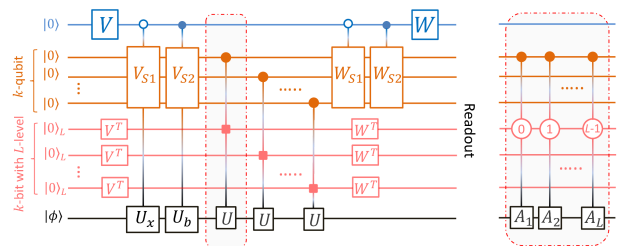


Figure 2: Quantum circuit implementation for training (extracted from [2]).