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Title: Robust Architectures for Arithmetic Circuits via Quantum Sampling

Author(s): Kodama, Nathan X.
Job, Vanessa
Monroe, Laura Marie

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Abstract: We explore arithmetic circuits on the D-Wave and design protocols that are robust to hardware noise induced by higher temperatures. Current practices combine energy penalty heuristics with nested correction; however, optimizing these local objectives yield limited performance gains. Our approach combines generative learning with sparse graphical codes to optimize the global objectives of models with long-range connectivity. We discuss how this could potentially lead to the utilization of exponentially large latent spaces, thereby serving as a path to quantum advantage on the D-Wave.