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Architectures for measurement-based quantum computation

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As our experience so far shows, building a quantum computer is not going to be easy. There are fundamental difficulties to overcome, such as decoherence, and suitable technologies and materials need to be identified. In between those two extremes lies the challenge of quantum computer architecture. Shall or shall we not envision a quantum computer as a von-Neumann type device, with CPU here and memory there? How are the qubits supposed to be wired? How do realistic physical constraints such translation invariance, planarity or bounded degree of the qubit connectivity graph affect quantum computer architecture? I will discuss these questions from the angle of measurement-based quantum computation.