

Quantum Computing

| Language | Description | Quantum Machine Learning | Open Source |
|------------------------------------|--|--------------------------|-------------|
| Q# | A high-level quantum programming language developed by Microsoft. | Yes | No |
| ReCirq | A Python library for quantum circuit programming developed by Google AI. | Yes | Yes |
| Blueqat | An open-source quantum programming language and compiler developed by Blueqat Inc. | Yes | No |
| Cirq | A Python library for quantum circuit programming developed by Google AI. | Yes | Yes |
| OpenFermion | A Python library for open-source quantum chemistry simulation and algorithms. | No | Yes |
| PennyLane | A Python library for quantum machine learning developed by Xanadu. | Specifically designed | Yes |
| Perceval | A Python library for quantum simulation and machine learning developed by Quandela. | Specifically designed | Yes |
| PyQudit | A Python library for quantum simulation and algorithms. | No | Yes |
| PyQuil | A Python library for quantum circuit programming developed by Rigetti Computing. | Yes | Yes |
| OpenQASM | A low-level assembly language for quantum circuits. | No | Yes |
| QCL | A high-level language that is designed for quantum circuit simulation by Dr. Bernhard Ömer (AIT Austrian Institute of Technology). | Yes | Yes |
| Qiskit | An open-source software development kit for quantum computing developed by IBM. | Yes | Yes |
| Quantum++ | A high-level quantum programming language in C++ library developed by softwareQ Inc. | Yes | Yes |
| Quipper | A high-level quantum programming language developed by Applied Communication Sciences. | No | Yes |
| QuNetSim | A Python library for quantum network simulation developed by the University of Bristol. | No | Yes |
| QuTIP | A Python library for quantum optics and quantum information science. | No | Yes |
| Strawberry Fields | A Python library for quantum machine learning developed by Xanadu. | Specifically designed | Yes |
| Pytket | A Python library for quantum circuit design and optimization developed by Quantinuum. | Yes | Yes |
| TensorFlow Quantum | A TensorFlow library for quantum machine learning developed by Google AI. | Specifically designed | Yes |

Notes:

All of the languages listed above can be used for hybrid quantum computing, except for OpenQASM.

Q# and Cirq are the only two languages that are currently supported by all major quantum computing platforms.

OpenQASM is the lowest-level language and is often used as a target language for other languages.

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