Special Issue on ``Quantum Software: Theory and Practice”
Journal: Quantum Machine Intelligence (Springer)
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Submission Deadline: June 30, 2019
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Quantum Machine Intelligence

Special Issue on
Quantum Software: Theory and Practice

Thanks to the progress in experimental quantum computing, devices that scale up to 50–100 qubits will be available in the near future, which might be able to perform tasks beyond the capabilities of today’s classical computers.
Such devices already allow us to execute quantum algorithms on quite significant inputs.

To help the implementation task, much effort has been recently devoted to the design of quantum programming languages offering higher level functionalities than just a quantum analog of assembly languages.

The development of quantum software is therefore becoming a first-class scientific challenge that involves all stages of the quantum toolchain from quantum hardware interfaces through quantum compilers to the implementations of quantum algorithms by means of various quantum computing paradigms such as the QRAM-based model, hybrid quantum-classical variational approaches, parametrized quantum circuit models, quantum annealing, and the discrete and continuous-variable gate-model.

This special issue will collect original results on recent advances in the development of Quantum Software.

Topics covered are:

- Quantum Languages Design and Implementation
- Quantum Software Verification
- Quantum Computing Platforms
- Quantum Programming for Machine Learning
- Quantum Simulators
- Higher-Order Quantum Programming
- Continuous-variables Quantum Computation

– Quantum Annealing

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The deadline for submission is June 30, 2019.

We look forward to receiving your contribution.

The Guest Editors,
Alessandra Di Pierro
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