

2026 IEEE INTERNATIONAL CONFERENCE ON QUANTUM SOFTWARE

<https://services.conferences.computer.org/2026/qsw/>

General Chairs

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IMPORTANT DATES

Paper Submission
08 March, 2026
Acceptance Notifications
10 May, 2026
Camera-ready and registration
31 May, 2026

The IEEE International Conference on Quantum Software (IEEE QSW 2026) is the premier venue dedicated to establishing quantum software as a rigorous engineering and scientific discipline. QSW focuses on the methods, abstractions, languages, tools, systems, and theories required to design, build, analyze, deploy, and evolve quantum and hybrid quantum-classical software systems.

Unlike physics- or hardware-centric venues, QSW emphasizes software-level contributions: programming models, languages, compilers, runtimes, validation & verification techniques, system architectures, lifecycle methodologies, and reproducible software artifacts. The conference explicitly targets the gap between quantum algorithms and operational quantum systems. QSW welcomes contributions from academia and industry that demonstrate technical depth, explicit assumptions, and clear software relevance.

The conference solicits high-quality submissions in the following areas, including but not limited to:

Foundations of Quantum Software

- Formal semantics of quantum and hybrid quantum-classical programs
- Type systems and correctness-by-construction approaches
- Resource-aware programming models (qubits, depth, noise, communication)
- Software-level cost models beyond gate counts
- Program equivalence, refinement, and transformation
- Abstractions for NISQ and post-NISQ software systems

Verification, Validation, and Quality Assurance

- Testing methodologies for quantum and hybrid applications
- Statistical verification with confidence guarantees
- Fault models at different software abstraction levels
- Specification languages for quantum behavior
- Regression testing and evolution of quantum software
- Software metrics, KPIs, and performance models

Quantum Software in the Cloud and at Scale

- Quantum Computing as a Service (QCaaS) software architectures
- Interoperability and portability across platforms and vendors
- Cloud-native quantum development environments
- Automation of deployment and execution pipelines
- Cost-aware execution and optimization strategies

AI-Assisted Quantum Software Engineering

- AI-based circuit optimization and synthesis
- AI-assisted error mitigation and noise adaptation
- Data efficiency, generalization, and limits of ML-based approaches
- Comparisons against analytical and compiler-based baselines
- Formal guarantees or failure analyses of AI-assisted techniques

Quantum Software Applications and Experience Reports

- Transition from prototypes to production-grade quantum software
- Scalability analyses with realistic constraints
- Migration across quantum technologies and platforms
- Reproducible experience reports with generalizable insights
- Negative results, failure analyses, and lessons learned

Quantum Software Development and Toolchains

- Quantum programming languages and intermediate representations
- Compilers, transpilers, simulators, optimizers, and code generators
- Circuit synthesis and decomposition techniques with software guarantees
- Simulation and emulation frameworks
- Design patterns and best practices for quantum software
- Data preparation and classical-quantum interfacing
- Development process and lifecycle models for quantum software

Hybrid Quantum-Classical Systems and Infrastructure Software

- Architectures for hybrid quantum-classical applications
- Orchestration, scheduling, and resource management
- Runtime systems for heterogeneous platforms
- Cross-stack optimization (application-compiler-runtime-execution)
- Deployment, monitoring, and lifecycle management

High-Performance Computing and Quantum Integration

- Integration of quantum accelerators into HPC workflows
- System software for quantum-enhanced HPC
- Performance modeling of quantum-classical workflows
- Co-design of HPC and quantum software stacks

Quantum Internet and Distributed Quantum Software

- Programming models for distributed quantum systems
- Network-aware compilation and execution
- Entanglement management and abstraction layers
- Simulation and emulation of quantum networks
- End-to-end quantum internet applications from a software perspective

