CALL FOR PAPERS - SPECIAL SESSION

"Data-Driven and AI-Based Methods for Control and Optimization in 6G Systems"

for CODIT 2026

July 13-16, 2026 ▪ Bari, Italy

Organizer(s)

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Keywords

6G, Artificial intelligence, Optimization, Machine learning, Reinforcement learning

Session description:

The evolution toward sixth generation (6G) communication networks introduces unprecedented demands on performance, adaptability, and intelligence across heterogeneous and highly dynamic infrastructures. Envisioned 6G systems will support ultra-reliable low-latency communication, massive connectivity, integrated sensing and communication, and energy-efficient operation at scale. Meeting these requirements calls for new paradigms in modeling, optimization, and control that can handle complexity, uncertainty,and fast-varying network conditions.

Artificial intelligence—especially machine learning, deep learning, and foundation-model–based approaches—has emerged as a core enabler of autonomous and self-optimizing 6G networks. Data-driven models allow for predictive resource allocation, proactive network management, robust control under uncertainty, and real-time orchestration of distributed network functions. At the same time, theoretical advances in learning-enabled control, optimization, and generalization are essential for guaranteeing reliability, safety, and interpretability in mission-critical 6G applications.

This special session brings together recent progress in AI-based methods for modeling, control, and optimization in next-generation communication infrastructures. It highlights contributions that bridge data-driven learning with control-theoretic foundations, address the challenges of scalability and security, and advance the autonomy and performance of future 6G systems.

Sub-topics (include but are not limited to):

- AI-enabled modeling and prediction for 6G networks
- Learning-based control and optimization for radio access and core networks
- Resource allocation, scheduling, and network slicing using ML/AI
- Reinforcement learning for autonomous network management and orchestration
- Integration of foundation models and large -scale neural architectures in 6G control
- Robustness, reliability, and safety of AI -driven control in communication systems
- AI-based methods for joint communication, sensing, and computation
- Security, privacy, and adversarial resilience in learning-enabled network control
- Applications in edge/cloud computing, IoT, vehicular and aerial networks, and cyber-physical 6G platforms

SUBMISSION

Papers must be submitted electronically for peer review through PaperCept by **February 07, 2026:** **http://controls.papercept.net/conferences/scripts/start.pl**. In PaperCept, click on the **CoDIT 2026 link "Submit a Contribution to CoDIT 2026" and follow the steps.**

IMPORTANT: All papers must be written in English and should describe original work. The length of the paper is limited to a maximum of 6 pages (in the standard IEEE conference double column format).

DEADLINES

February 07, 2026: deadline for paper submission

April 30, 2026: notification of acceptance/reject

May 20, 2026: deadline for final paper and registration

Proposal 7 submitted to 2026 12th International Conference on Control, Decision and Information Technologies (CODIT). Received December 16, 2025.