HyperAgents 2027

1st Workshop on High-Performance Agent Systems

Co-located with the *36th International Conference on Computer Communications and Networks (ICCCN 2027)*

July 14-15, 2027 | Rome, Italy

Conference site: https://www.icccn.org/ICCCN27
Workshop site: https://hyperagents.di.unipi.it
Submission link: TBA.

Important dates

- **March 7, 2027:** Paper submission deadline
- **April 23, 2027:** Acceptance notification
- **May 7, 2027:** Camera-ready deadline
- **July 14-15, 2027:** Conference dates

Overview

HyperAgents explores how networked and distributed computing systems can support efficient autonomous agents, and how agent-based approaches can improve the operation and management of computing and network services. The workshop covers both individual agents and multi-agent systems, including LLM-based agents, across cloud, edge and core infrastructures. High performance concerns task latency, scalability and efficient use of compute, memory, bandwidth and energy, together with task quality and reliability.

Supporting efficient agents requires attention to the whole execution path: reasoning and planning, tool invocation, memory and state access, workflow orchestration, scheduling and communication. Dynamic execution graphs, concurrent requests and changing resource availability create challenges for software frameworks and infrastructure. HyperAgents invites work on runtimes, hardware acceleration, resource management and networking that improves end-to-end agent execution.

Agent-based approaches can also use telemetry to diagnose faults, orchestrate services, schedule workloads and allocate computing and network resources. The workshop welcomes studies of their effectiveness, execution costs and reliability under operational constraints. It brings together researchers in networking, distributed systems and AI agents. Original research, early results, experience reports, case studies and position papers are welcome, with evaluation connecting system performance to task quality.

Topics of interest

Topics of interest include, but are not limited to:

- **Efficient frameworks and runtimes for agents:** execution of dynamic plan-act-observe loops, parallel tool calls and delegated tasks; scheduling, cancellation and resource sharing across concurrent agent workflows.
- **Hardware-accelerated agent execution:** GPU, FPGA and SmartNIC support for agent inference, tool execution, memory retrieval and inter-agent exchanges; hardware-software co-design evaluated through task latency, quality and energy use.

- **Agent placement, offloading and resource management:** placement and migration of agents, tools and memory as workflows evolve; allocation of compute and bandwidth under changing task dependencies, deadlines and connectivity.
- **Agent memory, security and resilience:** management of persistent memory and shared context; authorization of tool calls and delegated actions; recovery of agent workflows from stale observations, failed tools, interrupted execution or untrusted peers.
- **Multi-agent coordination and communication:** task delegation, negotiation and synchronization among agents; protocols for discovery and information exchange; effects of communication frequency, message content and coordination overhead on collective task outcomes.
- **Agents for computing and network management:** agent-based diagnosis, service orchestration, scheduling and resource control; use of telemetry and tools, coordination of control actions, policy enforcement and recovery from incorrect decisions.
- **Measurement and evaluation of agent systems:** workloads and benchmarks capturing branching plans, tool use, memory access and delegation; tracing execution bottlenecks and assessing task success, latency, scalability, resource use and control effectiveness.

Submission

Submissions must be original and not under consideration elsewhere. Papers must follow the standard IEEE conference format (double-column, 10-pt) and must not exceed 6 pages, including tables/figures and references.

Each submission will receive at least 3 independent reviews from the Program Committee. At least one author of each accepted paper must register for the workshop and present the paper to ensure its inclusion in the ICCCN 2027 conference proceedings.

Submission link: TBA.

Organisers

- Jacopo Massa (University of Pisa, Italy)
- Hojjat Baghban (University of Derby, UK)

For enquiries, please contact the workshop organisers.