HyperAgents 2025

In conjunction with

ECAI 2025 BOLOGNA

# The Second International Workshop on **Hypermedia Multi-Agent Systems** (HyperAgents 2025)

## Panel: Agents, LLMs, and the Web — A Brave New World?

Bologna | October 26

HyperAgents 2025

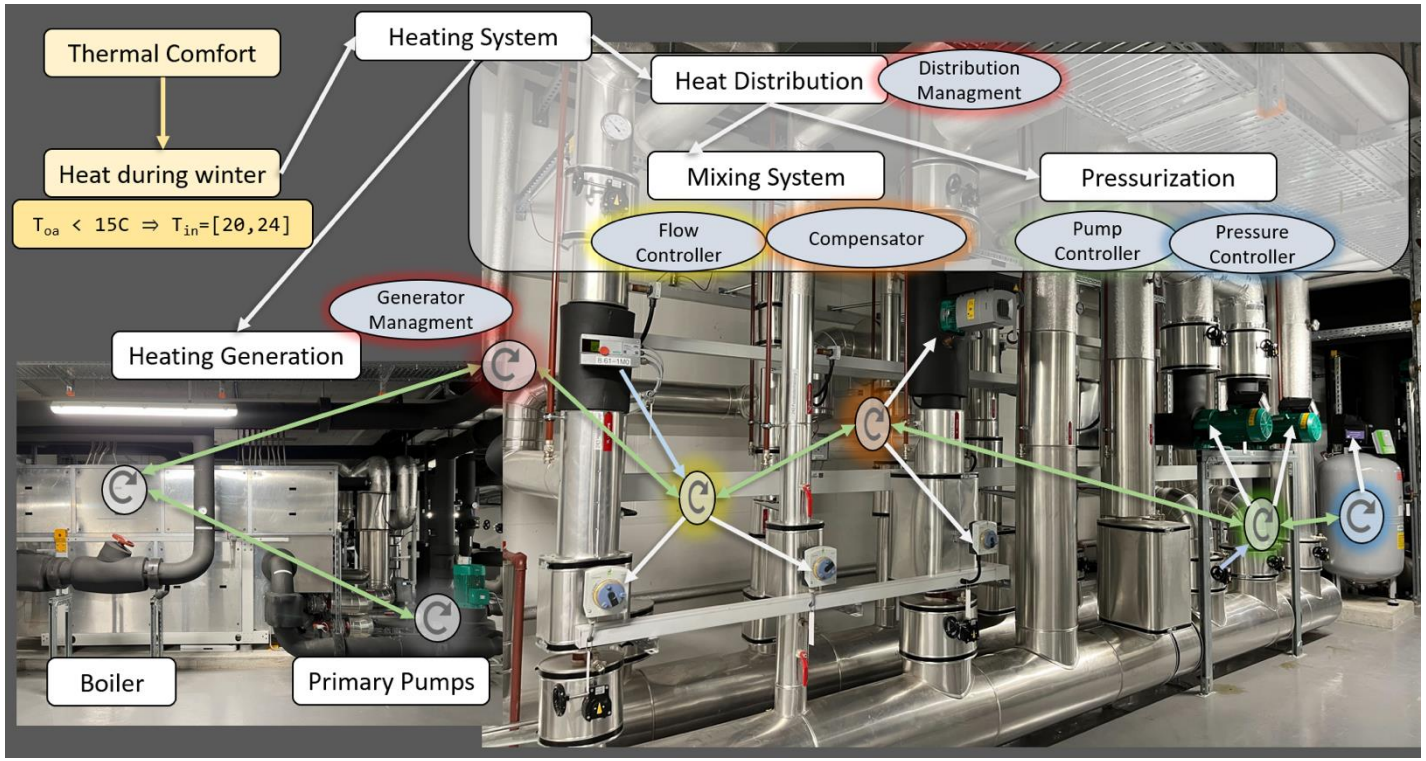
# Panel:
# Agents, LLMs, and the Web — A Brave New World?

**Panelists**:
Stephen Cranefield (University of Otago)
Terry R. Payne (University of Liverpool)
Ganesh Ramanathan (Siemens)
Alessandro Ricci (University of Bologna)

**Moderator**:
Andrei Ciortea (University of St.Gallen and Inria)

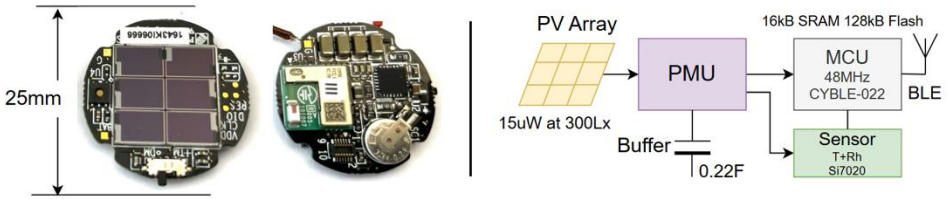
# Knowledge-infused Autonomy in Industrial Systems

Ganesh Ramanathan, Siemens AG




**2021-2023**: Fighting scepticism to show that autonomous systems in industrial automation is indeed achievable

*"one more starry-eyed messiah meets a violent end"*




**2023** IPv6 capable, energy harvesting sensors and actuators

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ba:CentrifugalPump a owl:Class
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**2025**: Systems based on Semantic Web technologies

**Current: How can we create <u>industrial-grade</u> *web-based* autonomous systems?**

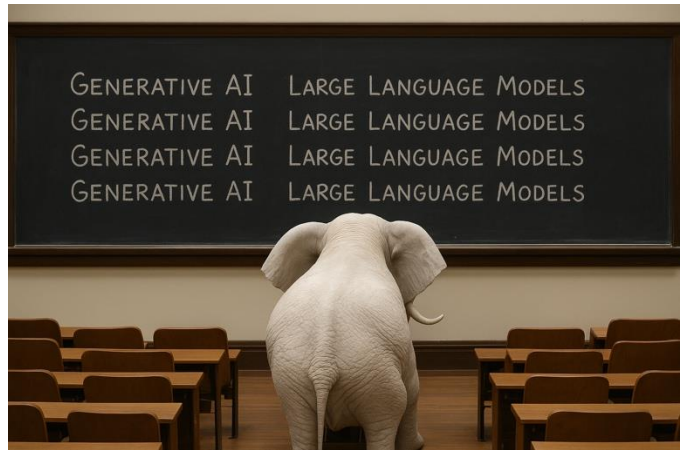
SIEMENS
Ingenuity for life

# Stephen Cranefield: LLM agents & Web principles will bring us back to *open* MAS

- Modern agent platforms allow us to develop complex and capable MAS
- On the other hand, these are closed ecosystems that lack interoperability
- Now the integration of MAS and Web concepts can result in truly open MAS
- A long-term MAS trend that hinders openness: a move from P2P agent interactions to *system-level design* where desired properties are achieved using specific architectures, services and middleware
- Can we locate social intelligence within agents rather than “in the system”, like people?
- LLMs will help (but don’t expect formal guarantees)
- One of Fielding’s Web requirements: a low entry barrier. Similarly, AOSE should provide: • Simple platform-independent abstractions and interfaces • Social reasoning libraries and services at the edges of the MAS • APIs for common programming languages

# Terry Payne

- Agentic AI
  - Interface agent or member of a MAS?
    - Communication?
    - Modelling of peers?
    - Coordination?
  - Or simply invocation of services.
  - Focus is on how, rather than why?
    - Modelling of utility and this rationality

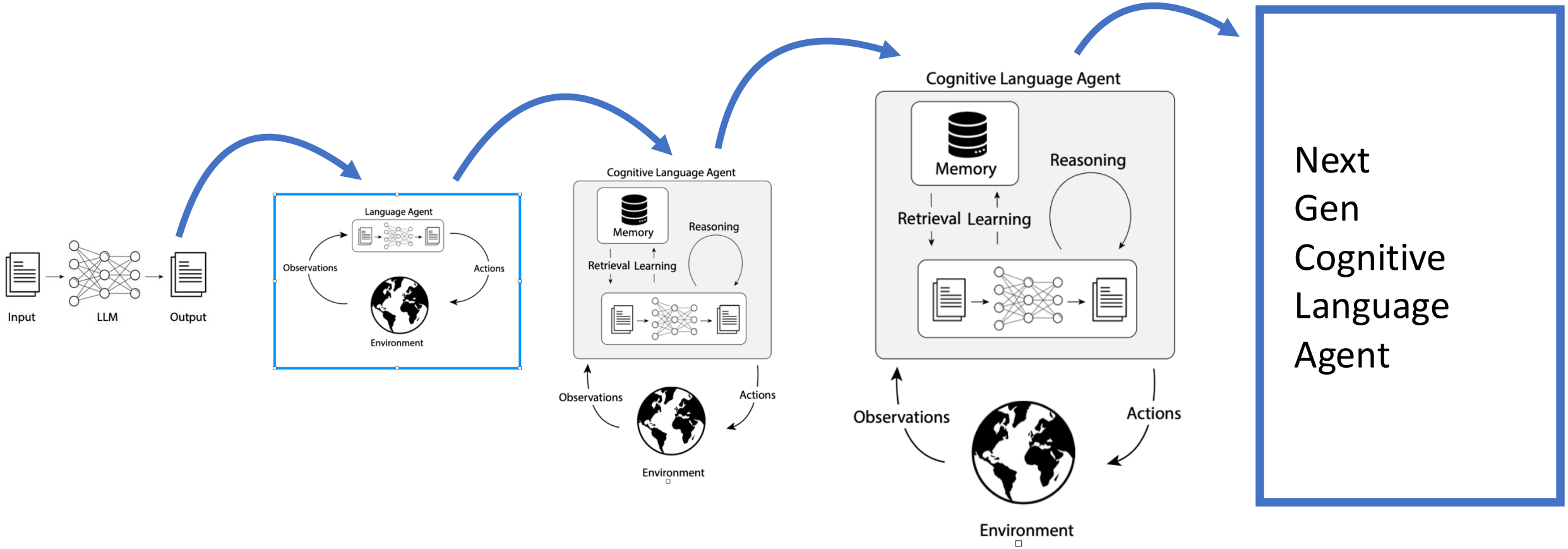



- Use of LLMs to support Ontology Engineering
  - Construction of engineering assets are inherently NL based
  - Construction of Competency Questions, based on User Stories or seed ontologies

- LLMs form part, but not all of the solution?

# Alessandro: “Hyper-Gedanken Experiment”

- if you had to develop the next version of the web to be used only by next-gen Cognitive Language Agents, how would you shape it?



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# Workshop Program

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|---|---|
| 09:00 | Opening and Welcome |
| 09:15 | Keynote: Terry R. Payne (University of Liverpool) — Autonomy, the Web and Knowledge-based Services |
| 10:15 | W3C WebAgents CG |
| 10:30 | Coffee Break |
| 11:00 | Session 1: Agents in Web Environments |
| 11:45 | Session 2: Web of Things, Ambient Intelligence, and Industrial Applications |
| 12:30 | Lunch |
| 14:00 | Session 3: LLM Support and Integration |
| 14:45 | Session 4: Interaction and Explainability |
| 15:30 | Coffee Break |
| 16:00 | **Panel**: Agents, LLMs, and the Web — A Brave New World?<br><br>*Panelists: Stephen Cranefield (University of Otago), Terry R. Payne (University of Liverpool), Ganesh Ramanathan (Siemens), Alessandro Ricci (University of Bologna)*<br><br>*Moderator: Andrei Ciortea (Univesity of St.Gallen)* |
| 17:00 | Community Session: The Road Ahead |