



in conjunction with



THE WEB
CONFERENCE

First Workshop on Hypermedia Multi-Agent Systems

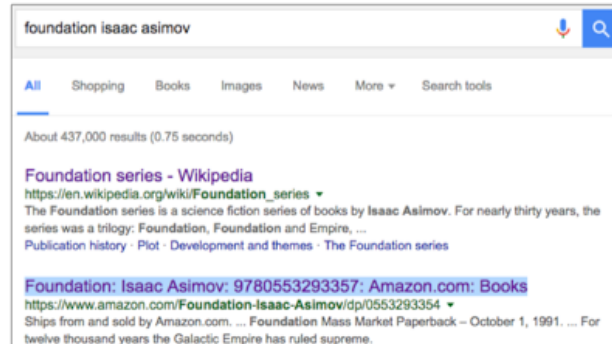
May 13, San Francisco, CA

Andrei Ciortea, Simon Mayer, Fabien Gandon, Olivier Boissier

 @hyperagents

Weaving a Web for People and Artificial Agents

The World Wide Web - An Internet-scale hypermedia environment for people



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Local guidance: hypermedia

The World Wide Web - An Internet-scale hypermedia environment for people



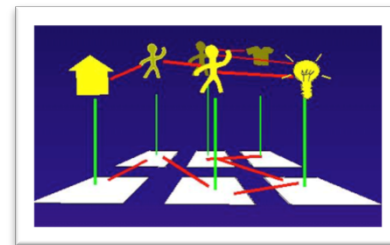
Local guidance: hypermedia

Global guidance: the buyer's goal



“(…) in fact documents on the web describe real objects and imaginary concepts, and give particular relationships between them. (…) This means that machines, as well as operating on the web information, can do real things.”

Sir Tim Berners-Lee, WWW 1994



<https://www.w3.org/Talks/WWW94Tim/>



“Hypertext does not need to be HTML on a browser. Machines can follow links when they understand the data format and relationship types.”

“(…), then automated agents can traverse these applications almost as well as any human. There are plenty of examples in the linked data communities. (…) and thus we can design the protocols to support both machine and human-driven applications by following the same architectural style.”

Roy Fielding, 2008

<https://roy.gbiv.com/untangled/2008/rest-apis-must-be-hypertext-driven>

What About the “Automated Agents”?

Local guidance: hypermedia is increasingly used in Web service design

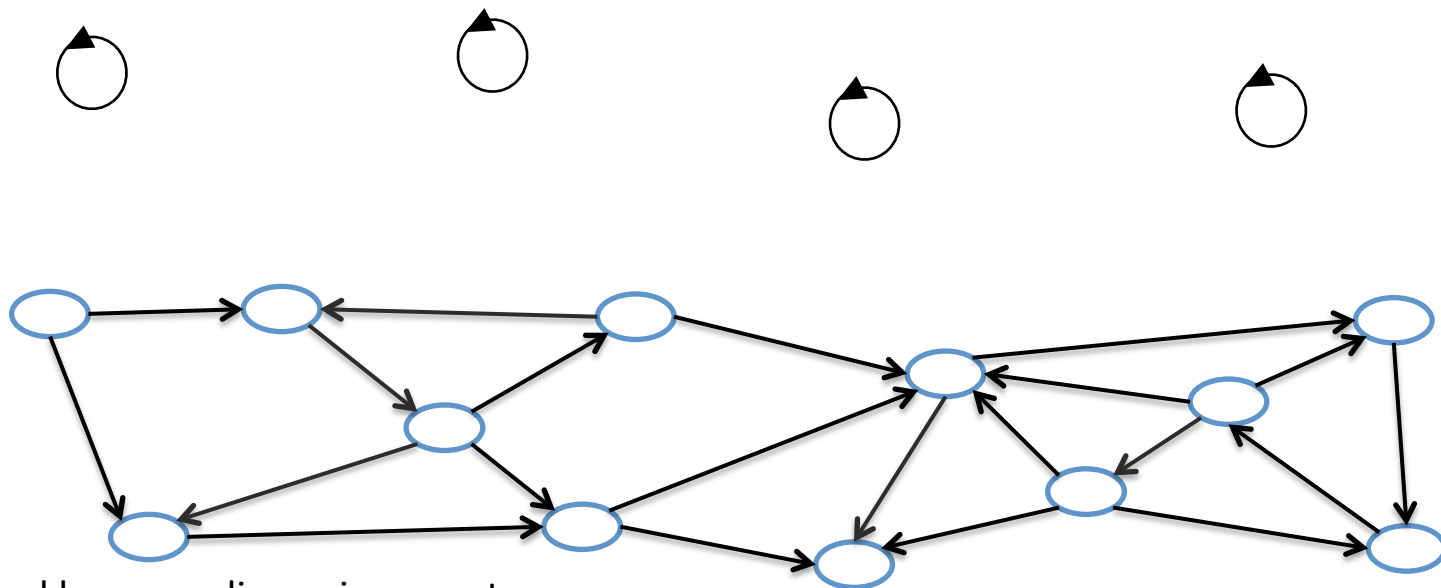
- W3C Web of Things Thing Description, W3C Linked Data Platform, Hydra, RESTdesc, HAL, etc.

Global guidance: how can software agents achieve their *design goals* by *navigating* the hypermedia and *deciding autonomously* among the various options presented to them at run-time?

- research on **multi-agent systems (MAS)** already provides solutions to *design*, *program*, *debug*, *monitor*, *regulate*, and *coordinate* autonomous, goal-directed agents
- it is now necessary to have comprehensive discussions on integrating *hypermedia systems* and *MAS*, what we call **hypermedia MAS**

Hypermedia Multi-Agent Systems

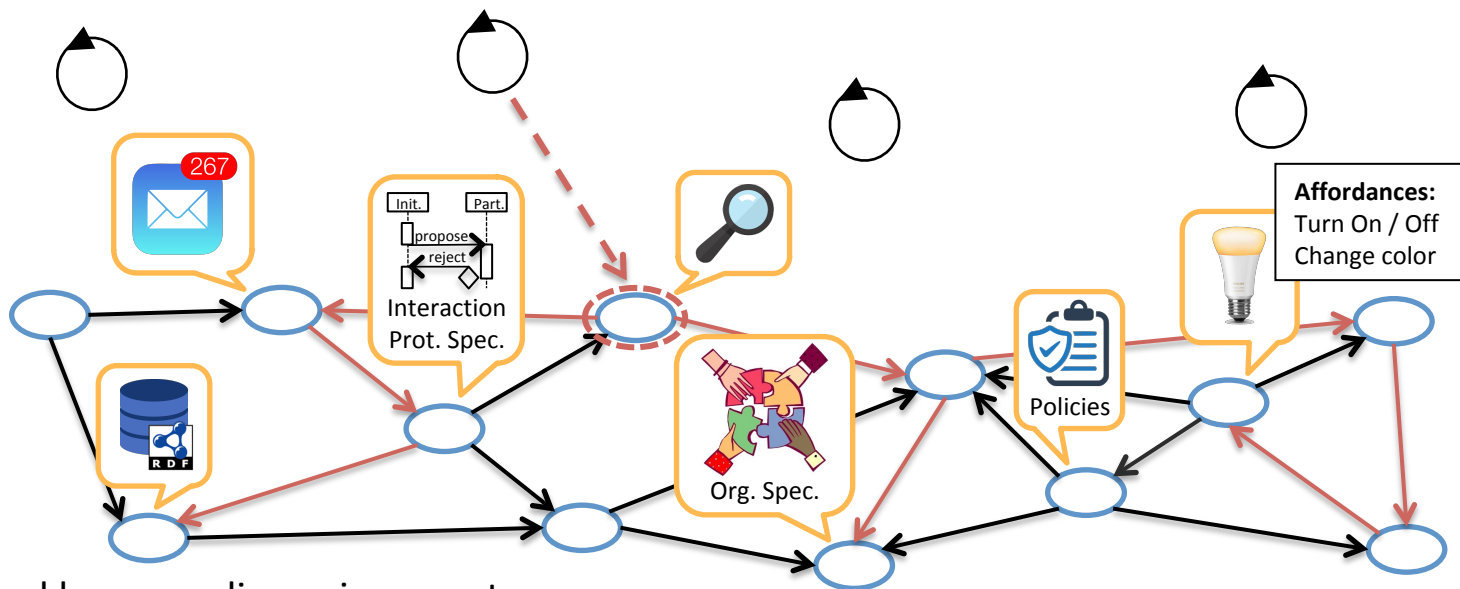
Socio-technical systems composed of people and autonomous agents situated and interacting in a shared hypermedia environment that is distributed across the open Web.



Distributed hypermedia environment

Hypermedia Multi-Agent Systems

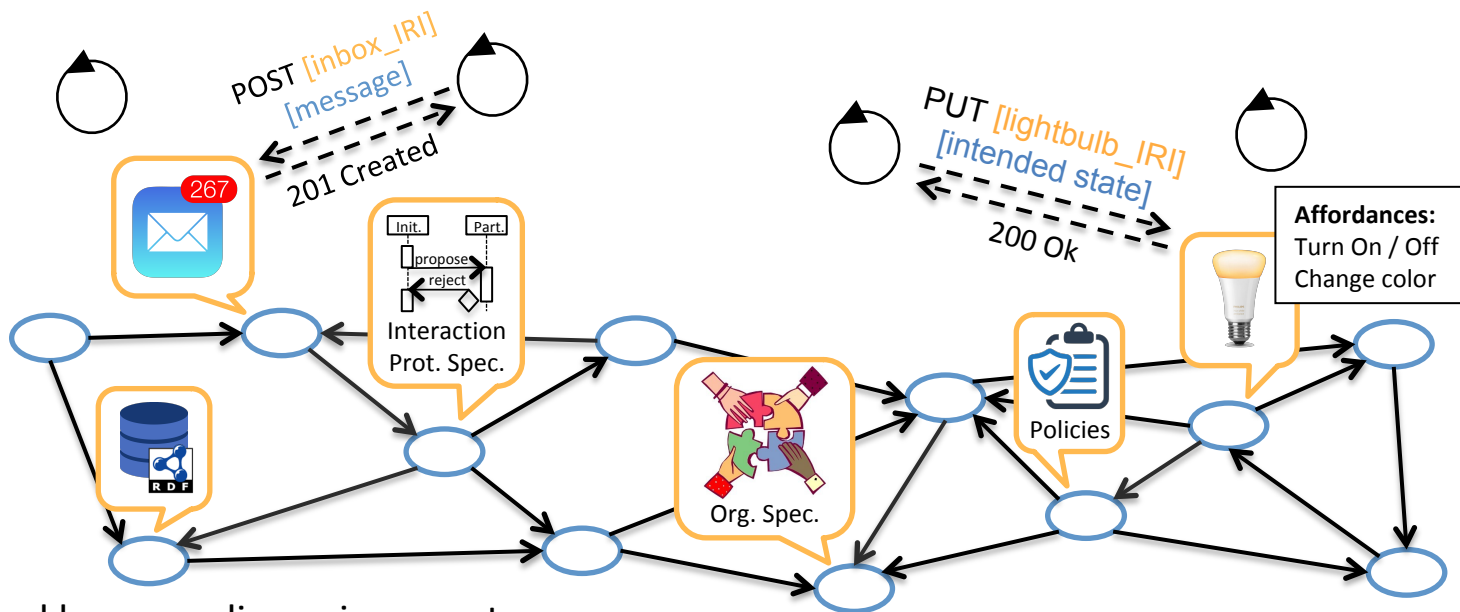
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Distributed hypermedia environment

Hypermedia Multi-Agent Systems

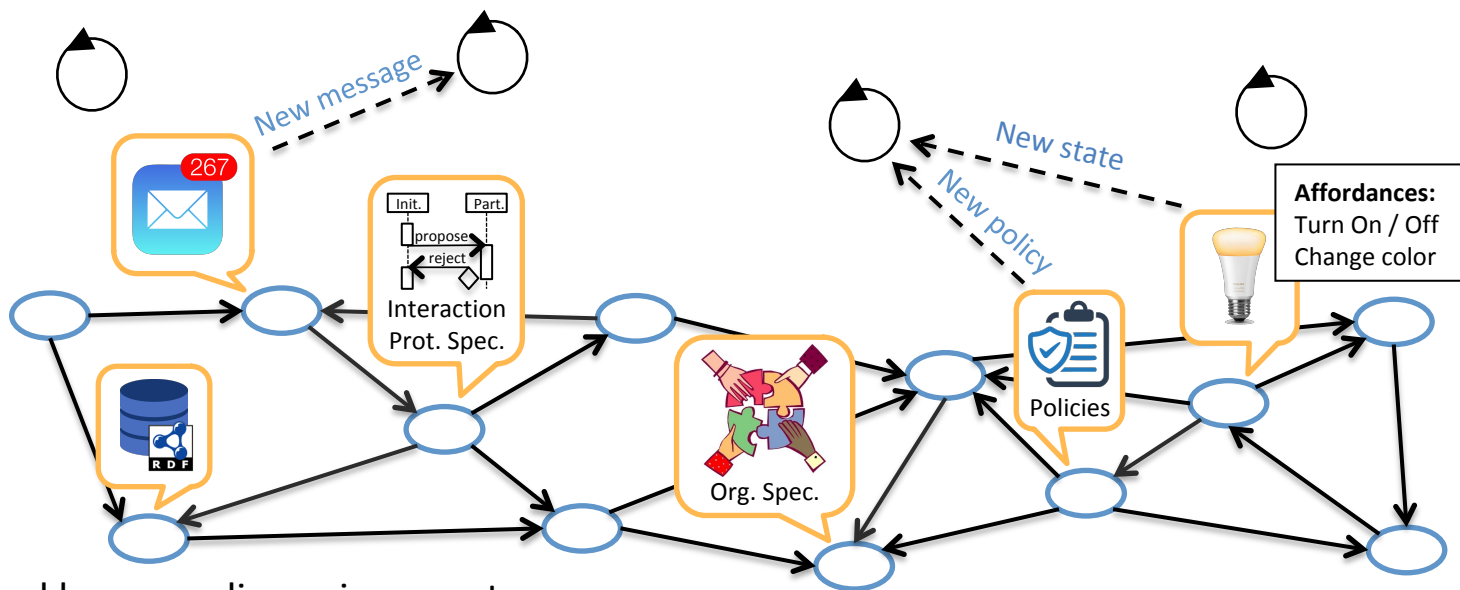
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Distributed hypermedia environment

Why HyperAgents 2019?

To establish a **common forum** for both the Web and MAS communities, and to create **social**, **conceptual** and **technological** bridges across these fields.



18th International Conference on Autonomous
Agents and Multiagent Systems
(Montreal, May 13th-17th)

Organization

41 PC members (incl. senior researchers from both the Web and MAS communities)

4 submissions, 20 reviews, 3 accepted papers

Sponsor: Siemens Corporate Technology

Workshop Program

14:00	Welcome and Opening
14:20	Invited Contribution (Alessandro Ricci): Levels of Abstraction in Designing and Programming Systems of Cognitive Agents
14:50	MAMS: Multi-Agent MicroServices (Rem Collier)
15:10	Digital Companion for Industry (Florian Michahelles)
15:20	Towards Enabling Internet-Scale Context-as-a-Service (Alexandru Sorici)
15:30	Coffee Break
16:00	Keynote (Florian Michahelles): As We May Work - Free Minds from Routines and Enable Creativity and Intuition
16:30	Keynote (Mike Amundsen): "Such a rich set of affordances" - Mapping the Hyperagent Ecosystem
17:00	1 Minute Madness and Breakout Discussions
17:25	Wrap up
	Social Evening



“1 Minute Madness” and Breakout Discussions

Objective: to offer everyone the opportunity to participate actively in the workshop

How it works:

- ideas for the “1 Minute Madness” were submitted online
- the submission system will stay open until the beginning of the coffee break
- each idea gets 1 slide (16:9, PDF) and 1 minute for presentation

Social Evening



Let's continue our discussions right after the workshop!

5:45pm, Eclipse Rooftop Bar (Hyatt Regency)

Drinks are sponsored by Siemens Corporate Technology

thank
YOU

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