An Integrated trust and reputation model for open multi-agent systems

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Overview

1. Terminology
2. The FIRE Model
3. Results
4. Conclusions

.. an open MAS?

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This causes some uncertainties:

1. Agents tend to be self-interested and may be unreliable
2. No agent can know everything about the environment
3. No central authority can control everything

Sources of trust

Source	Type
Direct experience	Interaction trust
Witness experience	Witness reputation
Role-bases rules	Role-based trust
Third-party references	Certified reputation

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- Agents are willing to share their experiences with others (as witnesses or as referees)
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So… we do not consider the problem of lying and inaccuracy.

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However… these ratings are not equally relevant:

- Older ratings might not be as relevent as new ones
- Some ratings are more credible than other depending on the source

So in what other way can we quantify trust?

How to quantify trust?

The FIRE way

Use a rating weight function ω_K for every type of trust.

$$\mathcal{T}_K(a,b,c) = \frac{\sum_{r_i \in \mathcal{R}_K(a,b,c)} \omega_K(r_i) \cdot v_i}{\sum_{r_i \in \mathcal{R}_K(a,b,c)} \omega_K(r_i)} \quad (1)$$

What about reliability

Summary

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