
Embodied Relational Intelligence: A Feminist-Informed Framework for Inclusive Multimodal Agents

Anonymous Author(s)

Affiliation

Address

email

Abstract

1 Conventional AI systems often lack awareness of social context and perpetuate
2 biases, partly due to assumptions of objective, context-free knowledge. In con-
3 trast, feminist epistemologies emphasize that knowledge is *situated* and partial,
4 shaped by the knower’s context. We argue that grounding AI in principles of
5 situated knowledge, relationality, and care can produce more inclusive, socially
6 aware intelligence, addressing systemic biases and blind spots in current models.
7 We aim to formalize a cross-disciplinary framework for *embodied, inclusive AI*
8 that bridges feminist theory and technical AI methods. Key objectives include
9 encoding social context into AI decision making and ensuring that the resulting
10 agents respect diverse perspectives and intersectional identities.

11 Our framework leverages *agent-based modeling* to simulate social environments
12 and emergent dynamics, allowing AI agents to learn from contextualized interac-
13 tions. Each agent integrates multimodal reasoning across language, vision, and
14 affect, enabling social and emotional grounding in its environment. Feminist
15 principles guide the design: agents maintain situated awareness (recognizing that
16 perceptions and knowledge are partial and context-dependent) and relational rea-
17 soning (modeling interdependence and social relationships with other agents and
18 humans). We incorporate fairness auditing with an intersectional lens, evaluating
19 model outcomes across intersecting demographics (e.g., gender, race, language)
20 to uncover biases that single-axis evaluations miss. In particular, the framework
21 emphasizes support for low-resource and multilingual communities, auditing per-
22 formance disparities, and adapting models for underrepresented languages and
23 cultures.

24 Initial simulations indicate that embedding agents in rich social contexts can sur-
25 face and mitigate harmful dynamics (e.g., biased resource allocation patterns)
26 prior to deployment. Multimodal social grounding has improved agents’ inter-
27 pretability and responsiveness to human affect, reducing miscommunication in
28 human–AI interactions. Intersectional fairness audits have revealed compound-
29 ing errors in marginalized subgroups, motivating new mitigation strategies (such
30 as adaptive reweighting and data augmentation) that significantly reduce dispar-
31 ity metrics. Our contributions include: (1) a novel integration of feminist epis-
32 temology into AI system design; (2) a multi-agent, multimodal architecture for
33 socially grounded AI; and (3) an intersectional evaluation toolkit for fairness in
34 low-resource and multilingual settings.

35 This work advances a vision of AI that is not only intelligent but also *socially*
36 *conscious* and equitable.