

The relevant work by **Piao et al. (2025)** focuses on developing a large-scale multi-agent simulation platform named "AgentSociety" for modeling urban behaviors and city dynamics. This research is highly technical, focusing on large-scale simulations, cognitive mechanisms (like memory and place selection), and computational efficiency.

The **Neurodivergent Scale for Interacting with Robots (NSIR)** can be applied to this work if the "agents" within the simulation are the "robots" that a user is interacting with. The NSIR would then measure the *user's subjective experience* of that interaction, which complements the objective data gathered by Piao et al.

Anthropomorphic Connection/Kinship

- The Piao et al. work discusses how current models of agents can lack long-term cognitive mechanisms. The NSIR can measure how a user perceives the resulting interaction quality.
- Items like **"The robot is more like me than anyone else I know"** (Item 1) would quantify if the "agents" are perceived as relatable or human-like, which is a subjective measure of their design success beyond mere computational efficiency.

Social Comfort/Trust

- The Piao et al. framework involves complex social interactions and memory within a simulated environment.
- The NSIR items that measure perceived understanding and consistency (e.g., **"I believe that my robot is the same with me as it is with anyone"**, Item 8) could assess if the agent's behavior, even in a complex simulation, feels reliable and trustworthy to the user.

Safety

- The NSIR's **safety** dimension (e.g., the item about undressing in front of the robot, Item 7) provides a crucial user-reported measure of security. This would be vital if the simulations were used for training in sensitive areas or if the user perceived the agent in a way that made them feel vulnerable, ensuring that complex simulations do not compromise user well-being.

The NSIR translates the Piao et al. framework's focus on large-scale simulation and technical cognitive mechanisms into measurable data on the user's subjective, lived experience of the agent interaction.

Would you like a deeper dive into the specific **technical challenges** of the AgentSociety platform and how the NSIR could apply to them?

The technical challenges of the Piao et al. (2025) "AgentSociety" platform for large-scale simulations can directly influence a user's experience, which can be measured by the

Neurodivergent Scale for Interacting with Robots (NSIR).

Large-Scale Simulations and Computational Efficiency

Managing thousands of agents in real-time requires computational efficiency, which might lead to performance compromises for individual agents (e.g., occasional delays or simplified behaviors).

- **Social Comfort/Trust:** Any inconsistency or delay in an agent's response could impact the user's trust in its reliability (p. 1). A user might disagree with the item: **"I believe that my robot is the same with me as it is with anyone"** (p. 1).
- **Anthropomorphic Connection/Kinship:** Performance issues might break the illusion of a human-like agent, reducing the perceived connection measured by items like **"The robot is more like me than anyone else I know"** (p. 1).

Cognitive Mechanisms and Memory

The Piao et al. research noted that current agents can lack long-term cognitive mechanisms and robust memory.

- **Social Comfort/Trust:** A lack of memory would prevent the agent from remembering previous interactions, making it seem inconsistent or incapable of understanding the user's context. This would directly impact items about perceived emotional understanding (e.g., **"My robot can tell what I am feeling, when I am sad, it can tell I am sad"**) (p. 1).
- **Anthropomorphic Connection/Kinship:** A failure to remember a user's name or a shared history would hinder the formation of a personal bond, impacting items like **"I gave my robot a name"** and **"The robot and I will be together forever"** (p. 1).

Urban Behaviors and Social Interaction Complexity

Modeling complex urban dynamics and social behaviors accurately is a significant challenge. Simplifications might lead to non-realistic or inappropriate social responses from agents.

- **Social Comfort/Trust:** Non-realistic social responses might make the user feel uncomfortable or uneasy, impacting social comfort and trust (p. 1). The item "**I think I can share my thinking with the robot without speaking**" relies on seamless, intuitive social interaction which could be difficult to achieve with current models (p. 1).
- **Safety:** An inappropriate social response could be perceived as threatening, impacting the user's score on the **Safety** dimension, including the item "**I feel comfortable undressing in front of my robot**" (p. 1).

The NSIR provides the user-reported data to determine if the technical solutions to these challenges are perceived as effective and safe from the neurodivergent individual's perspective.

Would you like to explore another article from the document, or perhaps a deeper dive into the specific **NSIR items**?