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Special Issue Reprint

## Advances in Social Bots

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The aim of this reprint is to synthesize the foundational advancements driving the paradigm shift from deterministic social bots to autonomous social agents. By examining the convergence of Large Language Models (LLMs), cognitive algorithms, and embodied intelligence, we aim to unravel the mechanisms enabling emergent reasoning, strategic persuasion, and multimodal interaction. In this reprint, leading researchers present architectural blueprints across three critical layers: Cognitive Intelligence for stance and sentiment detection, Perceptual Robustness for navigating digital and physical environments, and the Resilient Infrastructure necessary for distributed autonomy. Together, we address the technical challenges of the shifting “detection boundary” and the integration of synthetic entities into human social dynamics. We pave the way toward a sophisticated framework for computational sociology and generative AI, ensuring that the next generation of autonomous systems remains grounded in reality and aligned with societal values.

