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Autonomous Persona Generation: Leveraging Agentic AI for Scalable, Adaptive User Simulation

This research proposes a novel framework for automating the generation of AI personas using Agentic AI systems, designed to be MCP-compliant for robust interoperability and seamless tool integration. Traditionally, creating AI personas involves repetitive prompt engineering, manual calibration, and continuous human intervention, which can be time-consuming and error-prone. In contrast, we leverage the Agentic AI paradigm, where agents can perceive, plan, and act autonomously, to enable LLM-driven agents to construct, simulate, and refine dynamic personas aligned with psychological models such as the Big Five. Within MCP-compliant environments, these agents can retrieve domain-relevant data, invoke specialized APIs and modules, and iteratively adapt their behaviors based on interaction feedback, reducing the need for extensive manual oversight. By maintaining coherent memory and context-sharing across agents, this approach bridges the gap between static character modeling and adaptive user simulation, supporting diverse applications from A/B testing in marketing to social system modeling. Our findings highlight how Agentic AI can serve not only as powerful reasoning engines but also as self-sufficient persona architects capable of evolving with changing user or system contexts for more robust, data-driven, and adaptive interactive systems.

Special/ Invited session

Classification

Mainly application

Keywords

Agentic AI, Model Context Protocol (MCP), Persona Generation, Adaptive Simulation

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Track Classification: AI: Interpretability and Trustworthiness