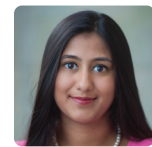


The Future Patient Persona: Democratized, Scalable Medical Education Enabled by Generative AI



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Standardized patient (SP) encounters provide medical trainees with opportunities to practice communication and clinical reasoning skills in structured, simulated settings. Although well-established and educationally effective, SP programs are resource-intensive, difficult to scale, and often limited in the number and diversity of cases learners can access. Despite clear evidence that structured, repeated practice improves clinical performance, most students engage with only a small number of SP cases during training.

To address these limitations, we developed the Standardized Patient Large Language Model (SP-LLM), a domain-specialized, agentic AI platform designed to simulate SP encounters that can be tailored to specific learner levels and institutional curricula. SP-LLMs generate contextually rich patient personas capable of realistic verbal interaction, affective nuance, and dynamic case progression, mirroring the complexity of actual clinical encounters. The platform delivers immediate, structured feedback aligned with established competency frameworks, while maintaining flexibility to address individualized learning goals.

Preliminary pilot testing has demonstrated strong feasibility and educational value. In a two-week cultural dexterity curriculum for general surgery residents, SP-LLMs adapted from Brigham and Women's Hospital's Provider Awareness and Cultural Dexterity Toolkit for Surgeons received high ratings across domains of realism, emotional fidelity, and communication skills development. In a separate implementation, a surgical oral examination simulator powered by SP-LLM and populated with MIMIC-IV clinical vignettes was similarly well-received, with clerkship students reporting strong perceived educational value, clarity of feedback, and enhanced exam preparedness. SP-LLMs will be formally deployed in the Harvard Medical School curriculum during the 2025–2026 academic year.

SP-LLMs are low-cost, infinitely reusable, and fully adaptable to local pedagogical needs, making high-fidelity clinical training accessible at scale. By providing structured, formative practice unconstrained by geography or clinical volume, SP-LLMs democratize and expand access to diverse patient scenarios and support a more equitable, scalable, and competency-based model of medical education. We are seeking partners to support the broader deployment and commercialization of SP-LLMs across institutions and educational settings worldwide.