AI Governance Considerations on Use of AI in Obesity Care

Exploring the Application of Artificial Intelligence in Obesity Care

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Development and Evaluation of Three Chatbots for Postpartum Mood and Anxiety Disorders

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In collaboration with Postpartum Support International (PSI), a non-profit organization dedicated to supporting caregivers with postpartum mood and anxiety disorders, we developed three chatbots to provide context-specific empathetic support to postpartum caregivers, leveraging both rule-based and generative models. We present and evaluate the performance of our chatbots using both machine-based metrics and human-based questionnaires. Overall, our rule-based model achieves the best performance, with outputs that are close to ground truth reference and contain the highest levels of empathy. Human users prefer the rule-based chatbot over the generative chatbot for its context-specific and human-like replies. Our generative chatbot also produced empathetic responses and was described by human users as engaging. However, limitations in the training dataset often result in confusing or nonsensical responses. We conclude by discussing practical benefits of rule-based vs. generative models for supporting individuals with mental health challenges. In light of the recent surge of ChatGPT and BARD, we also discuss the possibilities and pitfalls of large language models for digital mental healthcare.

CCS Concepts: • **Human-centered computing** → **Empirical studies in HCI**; • **Applied computing** → *Psychology*.

Additional Key Words and Phrases: postpartum depression, chatbot, rule-based, GPT, ChatGPT, PPMADs

ACM Reference Format:
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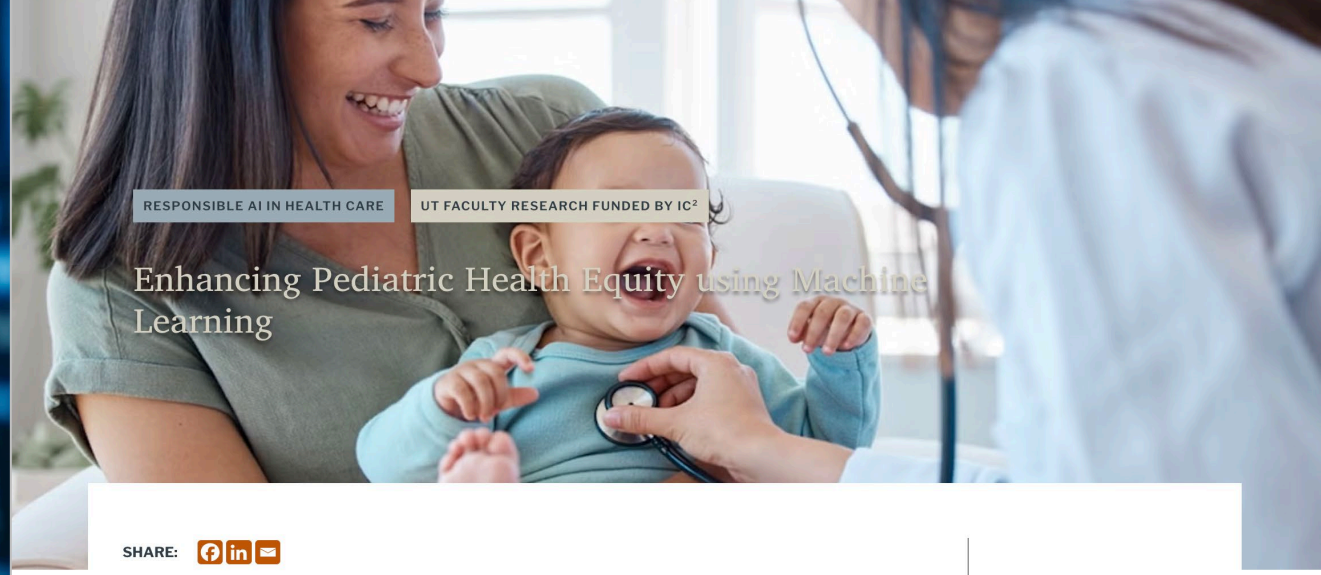


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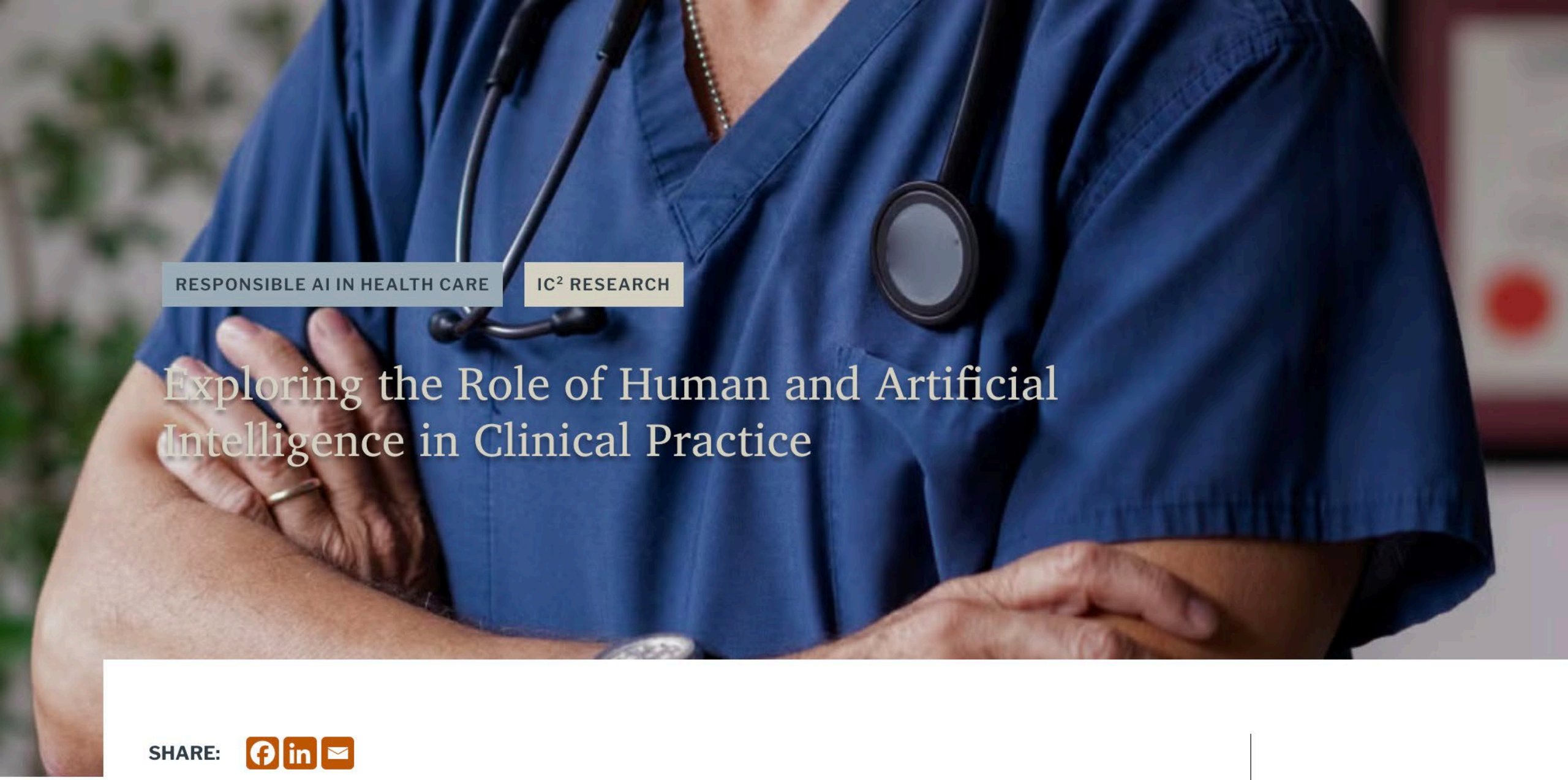


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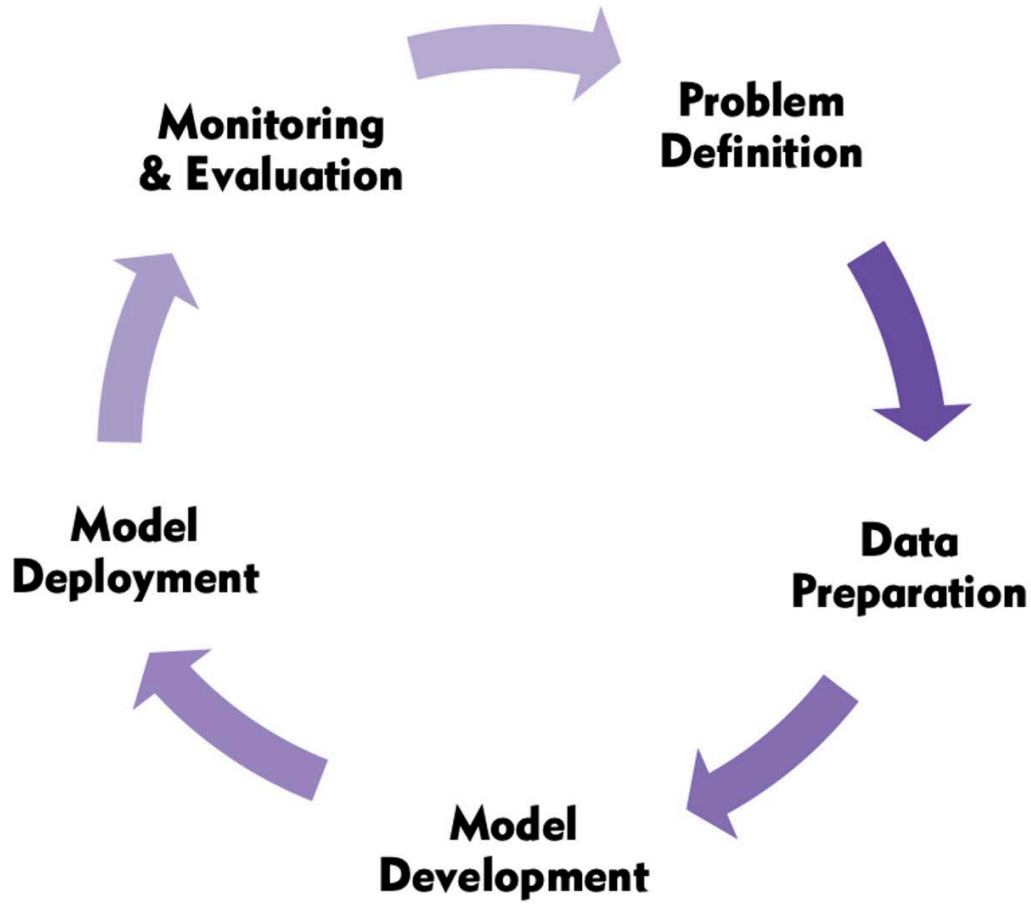
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AI GOVERNANCE

AI governance refers to the *structures, processes, roles, and accountability mechanisms* through which organizations oversee AI systems throughout their lifecycle. Governance defines *who is responsible, how decisions are made, and how compliance is monitored and enforced*.

AI Development Cycle

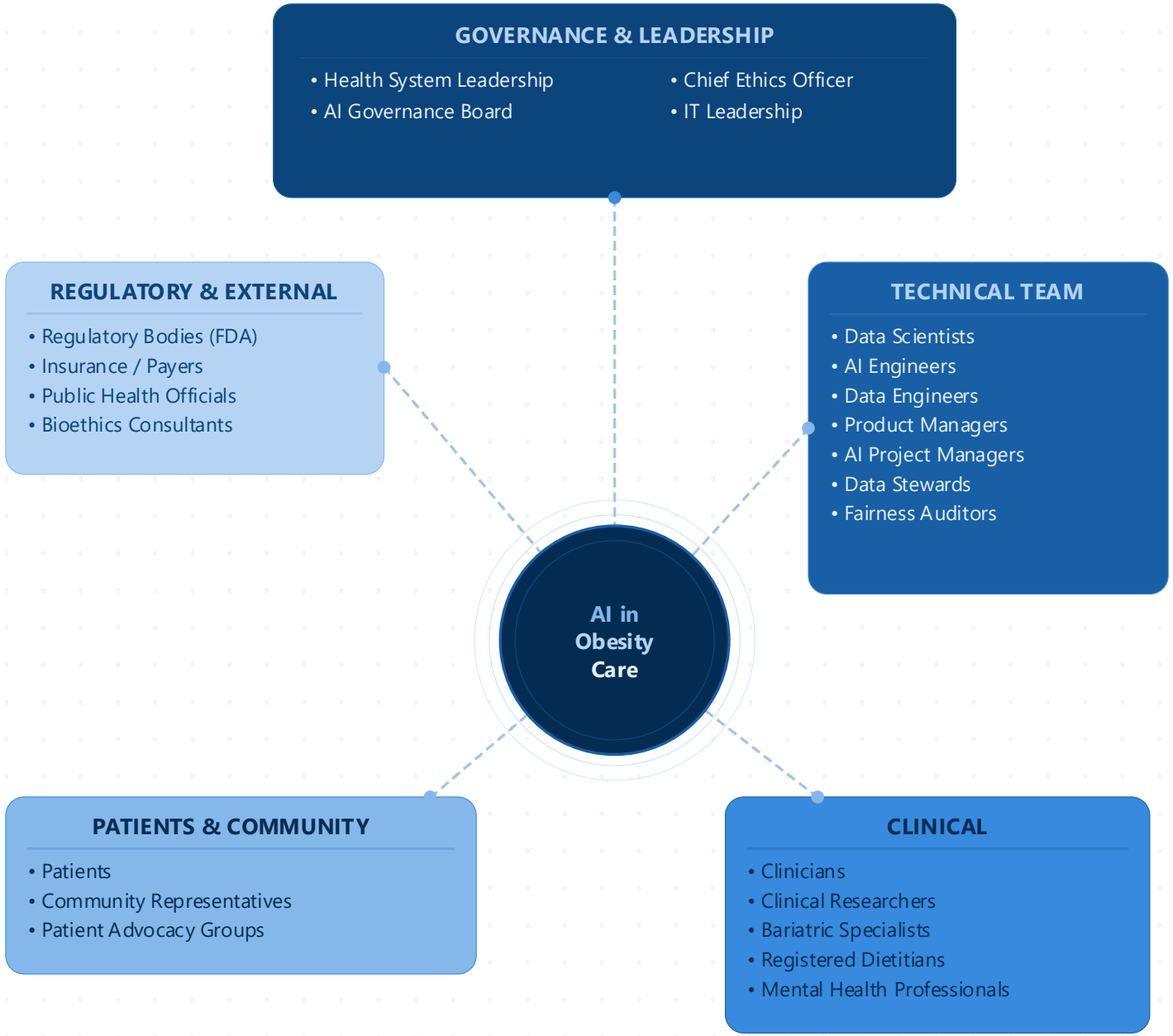


AI Obesity Care Risks

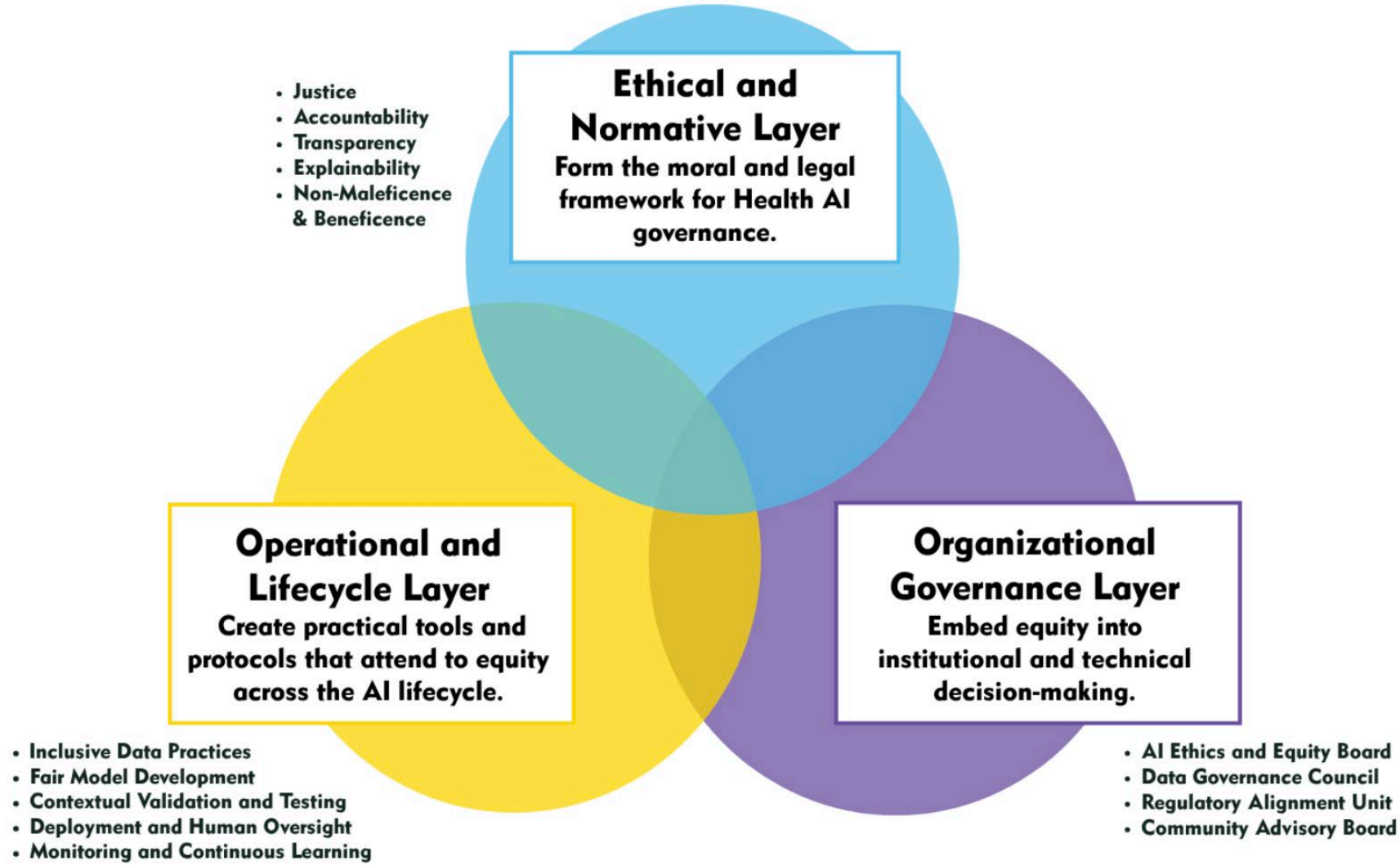


AI in obesity care — stakeholder map

Responsible AI governance requires clear identification of all stakeholders



AI and Health Equity Governance Framework



GOAL	Design, train, and test models with measurable fairness standards and equitable performance across population subgroups.
STAKEHOLDERS	AI Engineers, Fairness Auditors
RECOMMENDED ACTIONS	• Apply fairness metrics to ensure parity in algorithmic outputs. • Test models in diverse clinical settings (i.e., urban, rural). • Require external validation before clinical integration.
IMPACT	• Improves cross-group predictive performance generalizability. • Enhances clinical relevance across diverse environments.

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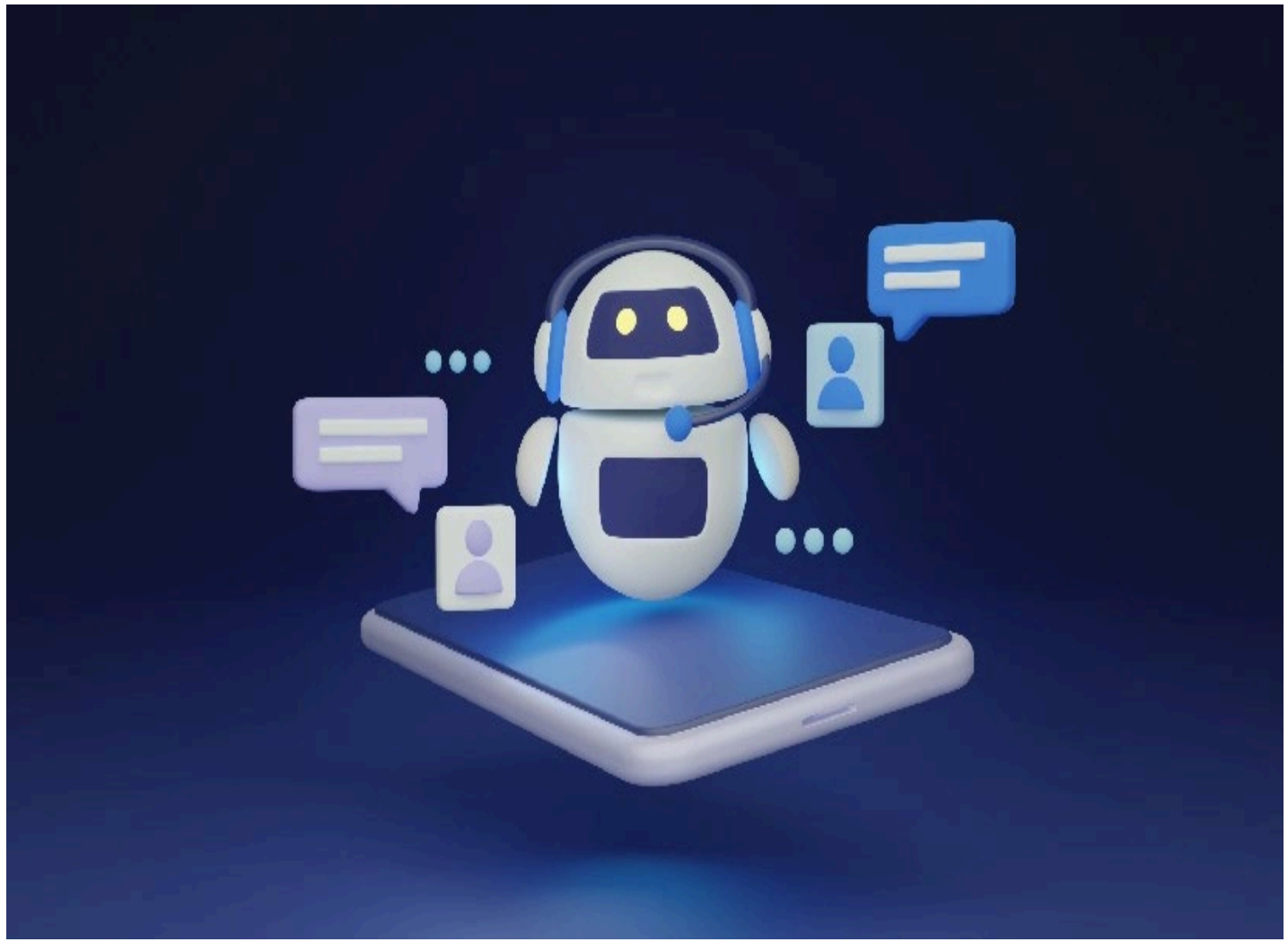
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Building a Healthier Future: Designing AI for Health Equity

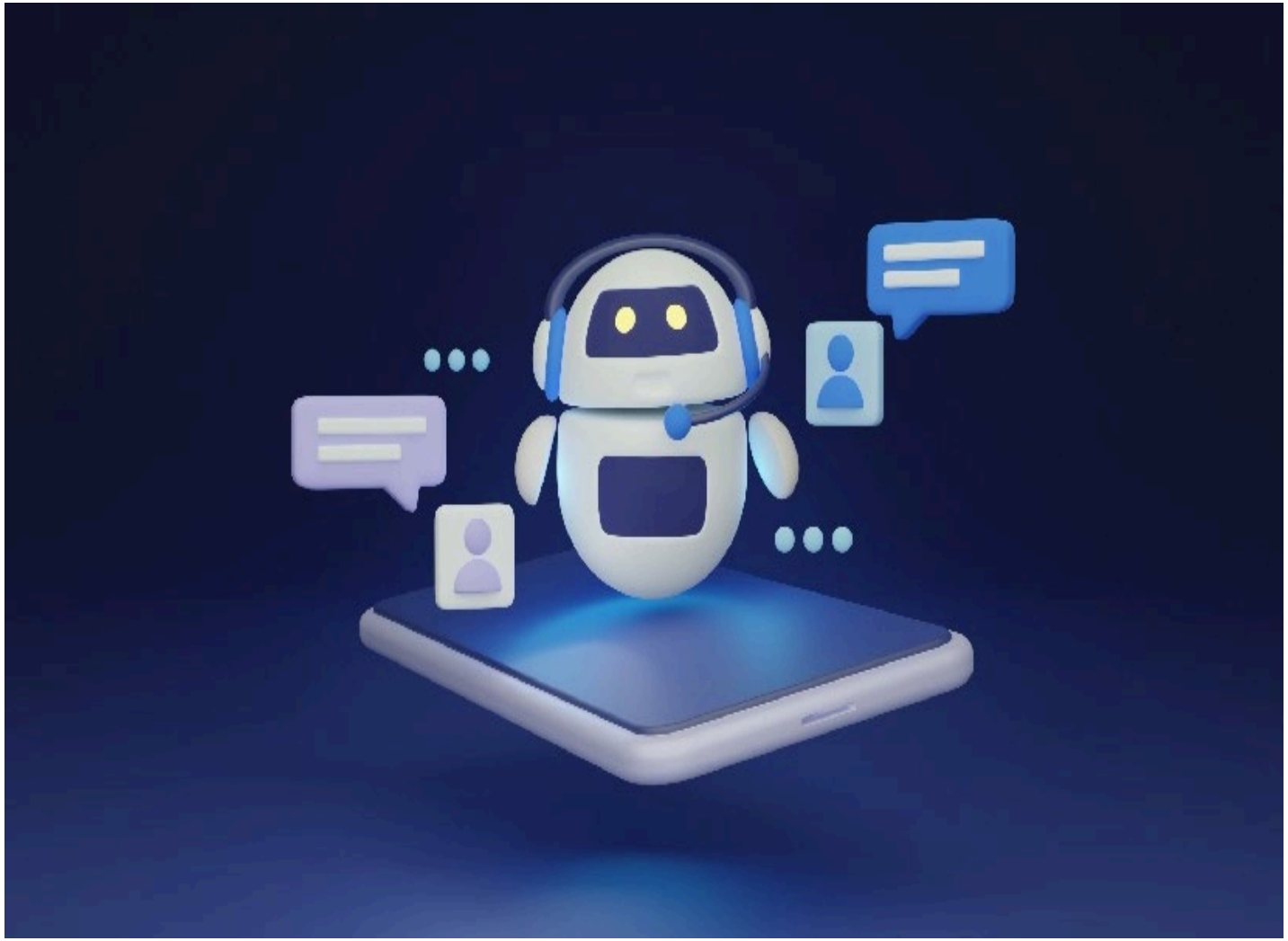
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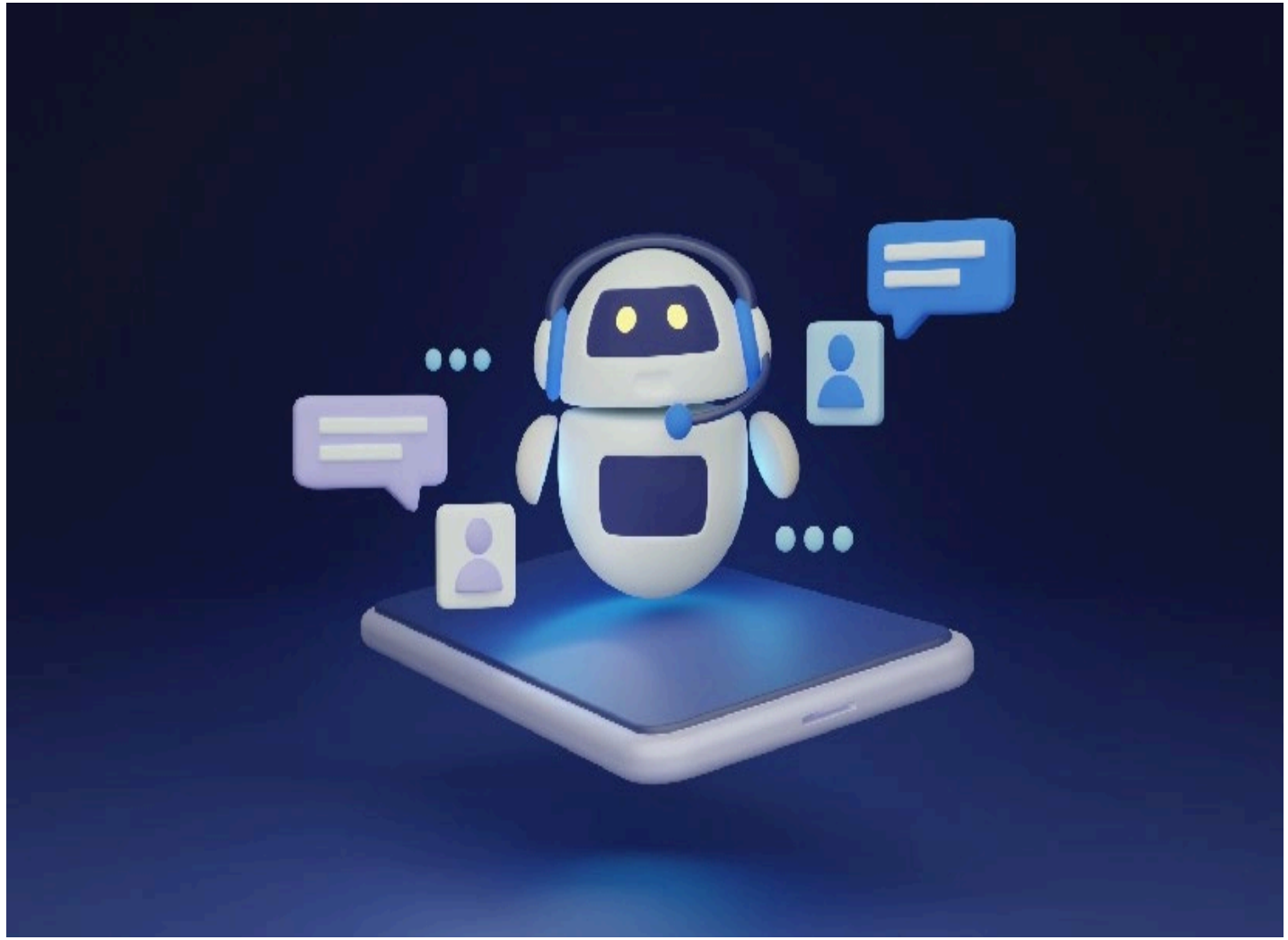


A chatbot delivering obesity care sits at the intersection of clinical risk, patient vulnerability, health equity, and algorithmic accountability.



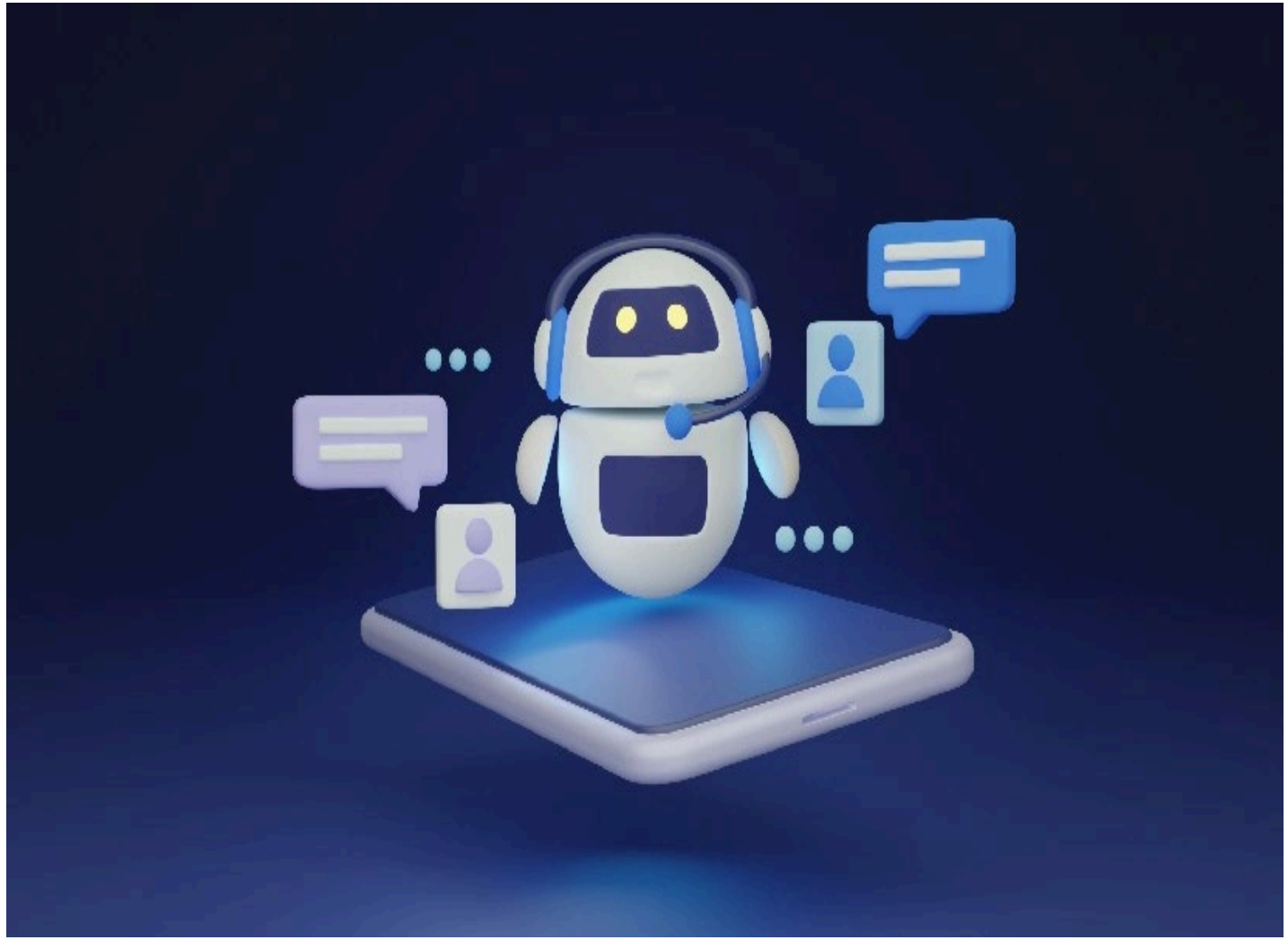
DATA GOVERNANCE

Data Stewards would define and enforce rules on what patient data the chatbot can access—weight history, glucose readings, dietary logs—and what is off-limits



CLINICAL ACCOUNTABILITY AND ESCALATION

A defined escalation protocol specifying the exact conditions under which the chatbot must transfer a patient to a human clinician (e.g., expressed suicidal ideation, disordered eating, dangerous glucose readings)



ONGOING MONITORING AND MODEL DRIFT

A monitoring protocol tracking chatbot performance metrics over time, including response accuracy, escalation rate, patient satisfaction, clinical outcome correlation.

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