HBKU Flagship Research Grant Program 3rd Cycle– Project Highlight

Project Title: Environmental exposure and human health in Qatar: A generative AI-enabled framework for risk assessment and communication

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Executive Summary

Qatar faces urgent environmental health issues, including a paradoxical high rate of Vitamin D deficiency and increasing heat-related illnesses despite receiving year-round sunlight. This project aims to create a generative AI-powered framework to evaluate and share personalized health risks from ultraviolet (UV) exposure and extreme heat. In Year 1, we focus on the UV–Vitamin D connection, using AI to model exposure habits, simulate behavioral interventions, and provide personalized health advice. In Year 2, the framework expands to include heat stress indicators, resulting in a comprehensive AI-driven risk assessment and communication platform tailored to Qatar's climate and public health situation. This tool will form the basis for prevention strategies and policy development.

Expected Outcome

- Invention Disclosure: AI-powered health risk assessment system.
- Prototype: Interactive platform (e.g., chatbot or dashboard) offering personalized recommendations for Vitamin D, using environmental and health data.
- Feasibility Study: Evaluation of framework's use in Qatar to guide future scaling and public health integration.

Flagship Area, keywords, tags: Environmental Human Health, Vitamin D deficiency, Generative AI for environmental health, Sustainable and Resilient Arid Cities.