Master course Bio-491 "New Tools and Research strategies in Personalized Health"

2025

**PROJECT
PROPOSALS**

PROJECT 1: Leveraging Large Language Models (LLMs) for Personalized Health

Situation: Despite broad acknowledgment that personalized interventions improve health outcomes, adherence to and sustained motivation for these interventions remain major challenges. Digital health tools hold great promise, yet many fail to achieve lasting engagement or to induce meaningful lifestyle changes. Large Language Models (LLMs), with their capacity for nuanced and personalized interaction, represent a transformative opportunity to enhance user engagement, motivation, and adherence.

While food and nutrition are prime examples - given their direct impact on metabolic and chronic diseases - the project may explore other lifestyle interventions, such as physical activity, sleep, stress management, or chronic disease management.

In this project, you will explore how LLMs can act as powerful tools to personalize health interventions, improve user adherence, and maintain motivation over time. Your assessment should review current strategies, analyze the strengths and limitations of LLMs in health personalization, and propose an innovative, actionable strategy leveraging LLM technology.

Key questions to address:
1. What are the key challenges in maintaining adherence and motivation in digital health interventions today?
2. What are Large Language Models, and how can they enhance personalized health interventions?
3. How robust is the evidence supporting LLM-driven personalization in health? What gaps still exist?
4. What potential risks or limitations might arise from using LLMs in personalized health, and how could these be mitigated?

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