HEALTHCARE INNOVATION TECHNOLOGY LAB (HITLAB)

BioTrillion: Measuring 10 Biomarkers from a 10 Second 'HealthySelfie' — With Only a Smartphone

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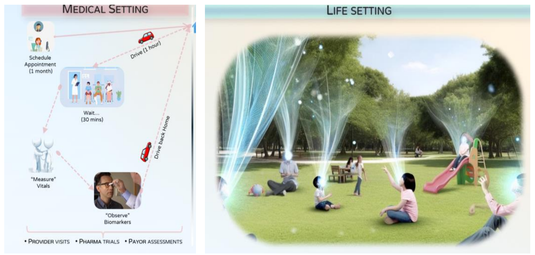
INTRODUCTION

Medical settings occupy just 1% of our time and space. Although the data generated there is valuable, it remains siloed, intermittent, and unstructured. As long as healthcare is confined to this narrow 1% window, its diagnostic power will stay fundamentally limited.

Life settings make up the remaining 99%. In this much larger observational window, the earliest signs of disease appear—yet are too often missed, even dismissed.

Life settings offer an opportunity to generate health data and insights at scales orders of magnitude greater than today's medical setting paradigm.



BioTrillion is a MedTechAI company on a mission to radically scale healthcare by applying smartphone technology to human physiology. Its BioEngine4D™ platform turns the smartphones already in 5 billion hands into medical-grade health monitors.

With their HealthySelfie™ app, users capture a 10-second selfie video; BioEngine4D's vision-AI models quantify milliscale spatiotemporal features in the eyes and face, extracting 10 digital biomarkers—clinically validated signs of health and disease. Their generative-AI models then combinatorially analyze these 10 biomarkers for actionable insights, enabling earlier disease detection and faster drug development. BioTrillion's philosophy: "Data from Life. Data for Life."

OBJECTIVES

- Evaluate the usability and functionality of the HealthySelfie mobile application based on Jakob Nielsen's ten established heuristics
- Identify usability issues, functionality challenges and potential roadblocks in user interactions with the platform

STUDY METHODOLOGY

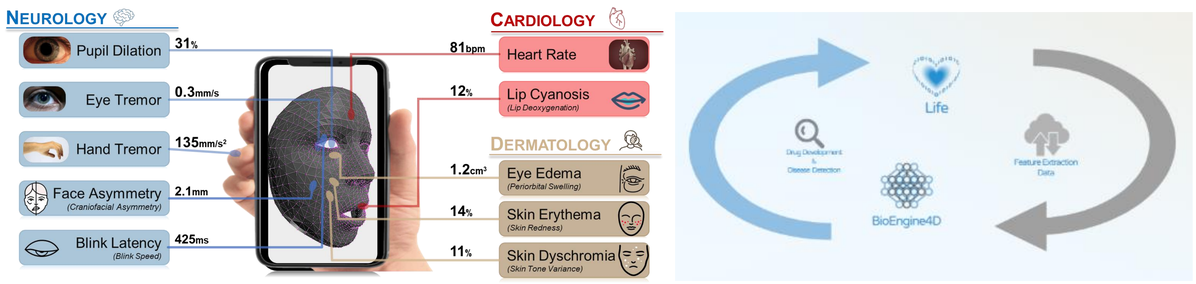
Heuristic Evaluation:

- Two independent researchers conducted the evaluation of the app's usability using the perspective of two types of users.
  - 38-year-old, freelance PCP consulting at multiple hospitals
  - 52-year-old, PCP managing their own clinic
- The evaluators analyzed the interface against Nielsen's heuristics on review of the design, layout, functionality, navigation, and content noting observed issues and their impact on usability and functionality.
- The evaluator noted the issues as observed and encountered, and their impact on usability and functionality of the platform.
- The recommendations made were categorized based on the impact value on the platform once the recommendations are incorporated. All sections of the platform frequency, and criticality, and ranked accordingly.

Granular Interface Evaluation Across User Journey:

- The evaluator also assessed every single page that forms a part of a typical user experience.
- For every page (or app screen), the evaluator provided:
  - Positive features including functionality, design, navigation, etc.
  - Error encountered or unclear outcomes.
  - Recommendations to improve the page's visibility and functionality
- This approach allowed for a nuanced understanding of the platform's usability across different clinical workflows and practice environments.

The HealthySelfie™ app, powered by BioEngine4D™, lets anyone measure and monitor 10 clinically validated biomarkers from a 10-second face scan—with over 90% average accuracy —using nothing more than the smartphone they already own.



RESULTS

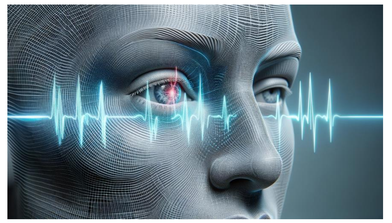
Strengths:

- **Engaging and Futuristic Design**: The app features an intuitive interface with a visually appealing color scheme and 3D design elements that appear modern and engaging. These elements not only make the platform easy to navigate but also sustain user interest, even among returning users.
- **Intuitive and Efficient Workflows**: The app offers clearly defined steps for capturing measurements, reviewing results, and accessing interpretive insights, making the overall experience streamlined and user-friendly.
- **Clear Instructional Guidance**: Users are provided with straightforward, easy-to-follow instructions for performing face scans, helping to reduce errors and promote confidence in the scanning process.
- **Detailed and Informative Results**: Results are presented with clarity, indicating whether readings fall within high, low, or normal ranges. The accompanying textual explanations help users understand the implications of their results without requiring clinical interpretation.

Heuristics	Rating (out of 5)
Flexibility and Efficiency of Use	1 2 3 4
User-control and Freedom	1 2 3 4
Error Prevention	1 2 3 4
Recognition rather than recall	1 2 3 4 5
Aesthetic and Minimalist Design	1 2 3 4
Consistency and Standards	1 2 3 4 5

RECOMMENDATIONS

- **Comprehensive Scanning Instructions:** Incorporate detailed, in-app guidance for conducting optimal face scans to reduce verbal instructions.
- **Actionable and Complete Reports:** Expand the downloadable PDF reports to include relevant patient demographics such as BMI, age, gender, and lifestyle factors. This integration will consolidate key information in one place, reducing the need for clinicians to cross-reference external records.
- **Enhanced 3D Visuals:** Add brief, explanatory labels to the colored regions on the 3D diagrams to clarify what each patch represents. This added context will improve user understanding and increase the educational value of the visuals.



CONCLUSIONS

- The HealthySelfie app by BioTrillion offers an innovative technology solution for detecting and monitoring of a patient's biomarkers.
- BioTrillion represents a compelling glimpse into the future of healthcare—delivered through a remarkably simple and non-invasive process: a 10-second face scan.
- With 91% accuracy backed by seven patents and over 45,000 hours of research and development, HealthySelfie™ is a promising innovation that bridges the gap between AI, bioengineering, and smartphone sensors to bring healthcare directly into people's hands.
- The heuristic evaluation also identified areas for improvement that could further enhance usability. By refining its usability and incorporating HITLAB's recommendations, BioTrillion is poised to enhance both its clinical utility and user experience. Its ability to enable routine monitoring positions it as a powerful innovation in the dynamic and fast-growing digital health landscape.
- Overall, the HealthySelfie app delivers significant value to both consumers and clinicians across the verticals in healthcare, and is well-positioned to become the epitome of futuristic health monitoring.

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