LEVL - Pace of Aging Algorithm

Company Description:
LEVL is an AI-native longevity startup building novel nutraceutical formulations and personalized protocols to help people live longer, healthier lives.

By leveraging AI-native research and product-development tools, LEVL identifies promising combinations of naturally derived ingredients and translates them into products and protocols that target the biology of aging while delivering functional benefits like Energy, Sleep, Focus, and Calm.

Our companion app dynamically optimizes personalized longevity protocols based on users' biomarkers and qualitative feedback, helping them improve their pace of aging over time.

Students will directly contribute to building the measurement and optimization layer behind LEVL's ecosystem: a modular Pace of Aging Algorithm that makes leading aging models more accessible, useful, and actionable for real users based on the data they already have, or are willing to submit. This system will help benchmark protocol effectiveness, improve personalization, and support LEVL's long-term protocol optimization engine in pursuit of LEVL's ultimate mission: Achieve Longevity Escape Velocity, and eliminate age-related disease.

Preferred Team Size: 4
Location: Remote - With virtual access to the team throughout the entire program

Project Summary

Objective:

Develop the MVP version of LEVL's Pace of Aging Algorithm, a modular platform that productizes existing open-source aging research and makes it accessible to users based on the data they do have, or are willing to provide.

Rather than inventing a new biological clock from scratch, this project focuses on building the system that lets users input limited but useful data such as bloodwork, wearable data, fitness signals, simple physical tests, and subjective sliders, then receive an interpretable estimate of biological age or pace of aging based on one or more established models.

The system should support inputs such as biomarkers, sleep and activity data, pull-up count, simple balance tests, and user-reported measures where appropriate. It should then standardize those inputs, run one or more aging models, and return usable outputs that can help guide protocol suggestions and future data collection.

At its core, this project builds the benchmarking backend for LEVL's protocol optimization engine. Over time, users will be able to feed in goals, biomarkers, wearables, and simple subjective inputs, while competing models output standardized actions in a shared protocol format and iteratively improve routines over time. Those broader optimization loops are out of scope for this project, but this system should be designed so they become easier to build.

Core Deliverable

Functional Pace of Aging Prototype v1

1. Flexible User Input Layer
Build a clean interface where users can submit a limited set of useful health inputs, including blood biomarkers, wearable metrics, simple fitness or balance tests, and qualitative self-reports. The system should be designed to work even when users only have partial data.

2. Modular Model Runner
Implement a lightweight architecture for running one or more existing open-source biological age or pace-of-aging models using standardized input formats. The goal is to make leading research models usable in a real product setting, not to develop a new clock from scratch. This directly narrows the broader multimodal ambition in the original brief into a more realistic product layer.

3. Standardized Scoring + Explanation Layer
Return a clear estimate of biological age or pace of aging, along with an explanation of what inputs influenced the estimate most and what additional data could improve accuracy. Outputs should be understandable, not just scientifically impressive.

4. Scenario + Protocol Benchmarking Interface
Allow users or internal LEVL team members to explore how changes in key inputs or behaviors might affect estimated pace of aging. This should function as a benchmark layer for comparing protocol strategies over time, not as a clinically validated prediction engine.

5. Protocol Optimization Hooks
Expose clean internal APIs or structured outputs so the Pace of Aging Algorithm can inform protocol suggestions, recommendation systems, and future iterative optimization workflows across LEVL.

Stretch Goals

- **Next Best Data Recommender:** Suggest which additional biomarker, wearable metric, or simple test would most improve estimate quality based on user budget, effort, and available tools.
- **Multi-Model Comparison View:** Let users compare outputs from different aging models side by side when enough data is available.

- **Longitudinal Progress Tracking:** Store repeated inputs over time so users can see whether protocol changes appear to improve their estimated pace of aging.

Scientific Relevance

Most biological age research remains inaccessible to normal users because the models are fragmented, hard to interpret, and often assume perfect data. This project helps bridge that gap by turning existing open-source aging research into a usable product layer that works with real-world, incomplete inputs. Over time, it can help LEVL benchmark which protocols appear to improve aging-related metrics, prioritize better measurements, and create a more adaptive system for protocol optimization grounded in accessible data rather than generic wellness advice.

Desired Skill Set

This project is ideal for students excited by the intersection of health data, AI-native product development, and applied scientific modeling. Helpful skills include full-stack development, comfort working with structured data and scoring logic, and interest in turning research models into usable product features. Bonus if students have worked with biomarker data, simple ML models, wearable APIs, or health-focused apps, but none of that is required. LEVL is built with AI-native tools and expects students to use modern AI workflows to move quickly and build clean, modular systems.

Student Benefits

1. Gain hands-on experience turning cutting-edge aging research into a usable real-world product. Work at the intersection of biomarker science, health data, AI-native tools, and product design.
2. Ship a visible system that helps benchmark protocol effectiveness and inform personalized recommendations.
3. Build a standout portfolio project involving health-tech UX, structured data, and scientific modeling.
4. Top-performing students may be invited to continue working with LEVL or be referred to partner startups in the healthtech and AI space.
5. Complimentary LIFESPAN+ products to improve sleep, boost energy, focus, and mitigate the effects of stress.

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