LEVL - AI Nutraceutical Development Platform for Anti-Aging

Company Description:
LEVL is an AI longevity startup targeting the biology of aging to create novel nutraceutical formulations and personalized protocols to help people live longer, healthier lives.

By leveraging the tools of AI drug discovery to identify synergistic combinations of naturally derived ingredients, certain formulations are emerging that rival the potency of comparable pharmaceuticals without the side effects and regulatory timelines of traditional drug development. Our first Patented formulation using this process mimics fasting-induced cellular rejuvenation without the need for caloric restriction, and in our testing is comparable to the leading anti-aging pharmaceutical, Rapamycin.
We are commercializing these breakthroughs under the LIFESPAN+ brand to deliver foundational cellular support, tackling the root causes of age-related decline while providing immediate functional benefits of Energy, Sleep, Focus, Calm, etc.
Our companion app dynamically optimizes personalized longevity protocols based on users' biomarkers and qualitative feedback, effectively slowing their pace of aging.

Students will directly contribute to developing our open-source longevity knowledge graph, powered by the frontier of aging research and anonymized user data, to democratize anti-aging research in pursuit of LEVL's ultimate mission: Achieve Longevity Escape Velocity, and eliminate age-related disease.

Preferred Team Size: 3-5

Location: Remote - With virtual access to the team throughout the entire program

Project Summary:
Objective:
Develop the MVP version of LEVL's AI Synergy Discovery Engine, a modular platform that helps researchers uncover, compare, and explain novel compound combinations that target the hallmarks of aging and functional health outcomes (e.g. energy, sleep, cognition).
This MVP will focus on delivering a usable researcher-facing UI, a synergy scoring engine, and a working NLP pipeline to extract structured synergy evidence from the scientific literature.

Core Deliverable: Functional Synergy Explorer v0.1
A web-based tool with the following core features:

- Compound + Combo Search UI: Researchers can query compounds and combinations using filters for functional outcomes (e.g. cognition), hallmarks of aging (e.g. mitochondrial dysfunction), or specific pathways (e.g. AMPK, mTOR).
- Effect Size Scoring & Ranking: Each compound and combination is scored on a 0–99 scale for effect size on: Hallmark of aging impact, Functional benefit, and Pathway activation. Effect size scores should be shown alongside synergy score, ingredient dosing, short mechanistic explanations, and source links.

- Ranking & Exploration Tools: Users can sort and rank by any score dimension, explore top combinations, and compare individual ingredients
- Structured Literature Ingestion (NLP): A working pipeline that extracts synergy-relevant claims (e.g. “compound X boosts autophagy via AMPK”) from a corpus of scientific papers, populating the platform with effect size estimates and evidence. Modular to enable ingestion of additional libraries of scientific papers in the future.
- Export & Bookmark Tools: Save top candidates for further testing or formulation consideration.
- Modular Scoring Equation Engine: The effect size scoring algorithm is modular and designed for hot-swapping improvements from LEVL’s research team. Updating the logic triggers auto-updates across scores and rankings.
- App Integration: The platform should be designed to ingest structured efficacy data from the LEVL Protocols App, including user-reported outcomes and biomarker changes tied to specific formulations. This enables a closed feedback loop where real-world results continuously refine synergy scores and compound rankings over time.

Scientific Relevance:
By rapidly surfacing safe, multi-compound regimens that intervene on the biological drivers of aging, the LEVL AI Nutraceutical Development Platform can shorten the discovery cycle from years to weeks and democratize access to evidence-based longevity therapeutics. Accelerating this pipeline means that effective, low-toxicity interventions for better energy, sleep, cognition, and disease-free lifespan reach the public sooner—improving quality of life at population scale while reducing long-term healthcare burdens.
Students will collaborate with LEVL’s PHD Chemists to define the initial effect size scoring function, rooted in literature and known mechanisms.
Scoring weights should accommodate:

- Hallmark of aging relevance (via GenAge, CellAge, Reactome)
- Known bioactivity strength
- Confidence from literature (e.g. human > animal > in vitro)
- Synergies can be inferred from multi-pathway targeting or supporting evidence of additive/complementary effects.

Stretch Goals: (subject to available time and interest of the student team)

- Integrate pharmaceutical compounds, additional Longevity Modalities (Sauna, intermittent fasting, etc.) for broader synergy exploration
- Add network visualizations of compound-pathway links (e.g. Cytoscape.js, KEGG, Gephi)
- Train a prototype ML model to predict synergy likelihood from structure + mechanism embeddings

The students will be involved in every phase of the project from design through implementation. During the design phase, the students will interact with LEVL researchers to collect requirements and scope the development effort into manageable tasks. They will also gain experience with agile product development in a fast-paced startup environment, using the RICE

prioritization framework and collaborating closely with business stakeholders to guide decisions and maximize impact.

Desired Skill Set:
This project is great for students familiar with full-stack development and interested in applying AI to health and longevity. Helpful skills include building UIs (React/Next.js), simple APIs (FastAPI/Flask), working with databases (PostgreSQL), and using NLP tools (like spaCy) to extract insights from research papers. A core feature is a modular scoring system written in Python. Specific tools are flexible and learnable—what matters most is clean code, curiosity, and thoughtful architecture.

Student Benefits:

1. Gain hands-on experience with frontier models, scientific literature parsing, knowledge graph construction, and health optimization.
2. Enjoy creative freedom to design and solve open-ended, high-impact problems that push the frontiers of human life extension.
3. Each team will ship an independent, modular contribution with clear ownership and a path to public demo or open-source release.
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.

IP Rights:
Students will be asked to sign a proprietary information and intellectual property assignment agreement. Intellectual property rights to all code, data, and documentation will be retained by LEVL, Inc.

Contact Information:
Kylen McClintock: CoFounder & CEO LEVL, Inc. Kylen@LEVLHealth.com. (6085128327)