HEALIOS

The AI Post-Surgical Recovery Assistant

"Solving the multi-billion dollar problem of preventable post-surgical readmissions by achieving the goal of continuous, intelligent patient monitoring"

Hack to the Future

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THE PROBLEM: High Cost of Going Home

Core Fact 1 (The Danger)

- **Post-Discharge Blind Spot: Patients suffer dangerous complications at home, including Surgical Site Infections (SSIs), poor Medication Adherence, and missed distress signs. ⚠️**

Core Fact 2 (The Consequence)

- **This leads to 20% of surgical patients being readmitted—a direct cost of $17 Billion annually in the US. 💸**

Core Gap (The Challenge)

- **The Logistical Barrier: Clinicians face a massive logistical and data challenge that prevents effective, continuous monitoring outside the hospital.**

THE SOLUTION: A Virtual Recovery Nurse

CLIENT

Patient Mobile App: The Data Collector. Captures multi-modal data using smartphone sensors: Computer Vision (CV), Natural Language Processing (NLP), and Accelerometer/Sensor Fusion.

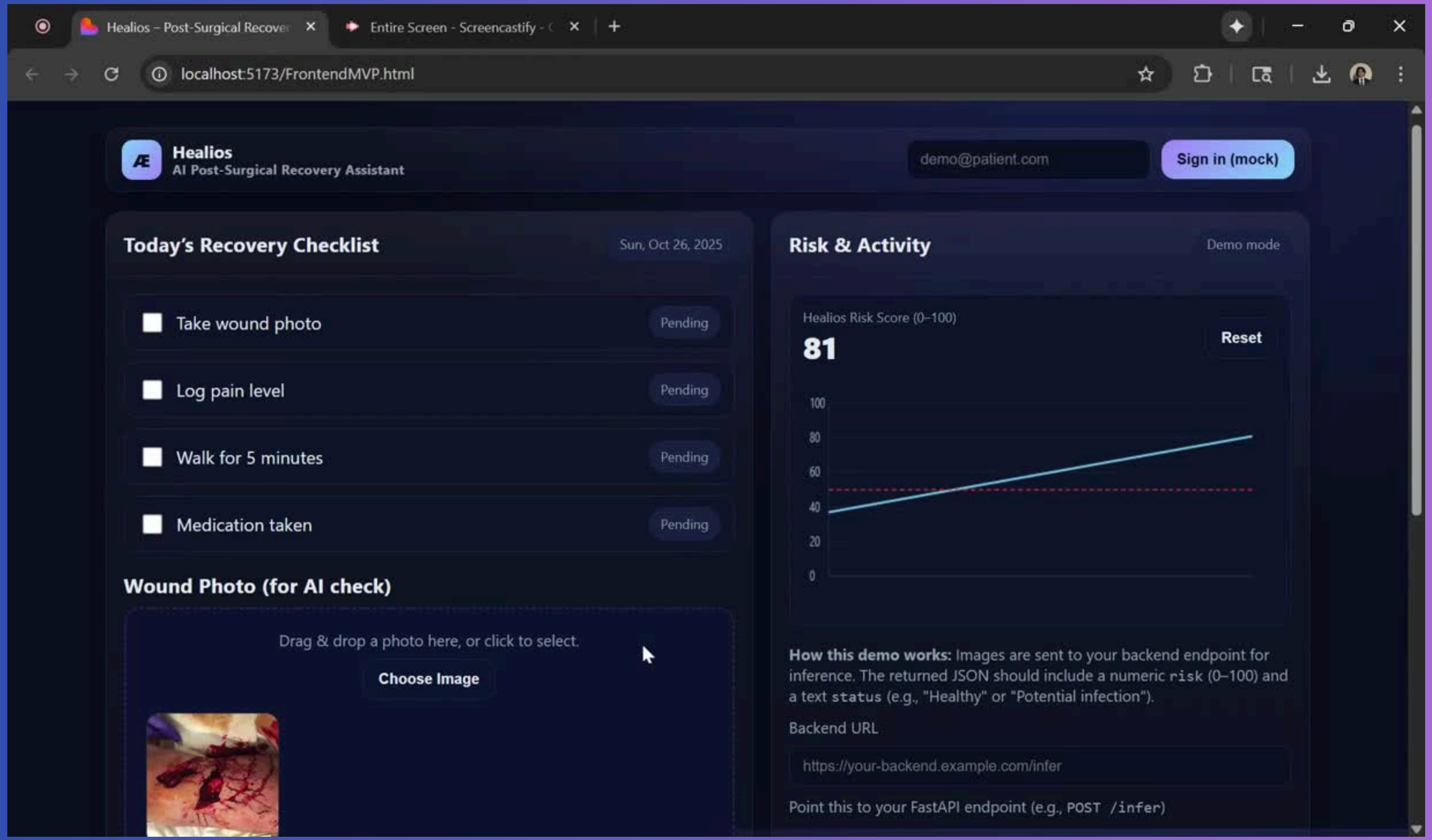
CLINICIAN

Clinician Dashboard: The Risk Engine. The platform aggregates data and delivers AI-derived insights, sorting the patient list to prioritize the highest-risk patients first.

MVP: Computer Vision (CNN) → Surgical Wound Infection Detection

Image → AI → Warning

LIVE DEMO: AI Diagnostic Proof of Concept



INNOVATION: Leveraging AI to Triage Risk

Pillar 1. Full-Spectrum CV:

- Move beyond classification to use Image Segmentation (U-Net) to objectively track wound size (healing vs. stagnation) and tissue type.

Pillar 2:

- Remote Vitals (rPPG): Extract heart and respiratory rate from simple face video. Innovation: Using RNN/LSTMs to filter out motion and lighting noise—the biggest challenge for real-world rPPG.

Pillar 3:

- Sensor Fusion & Predictive AI: The ultimate goal is an LSTM/Transformer model that fuses all data streams (CV, NLP, Vitals, Adherence) to deliver the dynamic Readmission Risk Score (0-100).

OHI/O Focus:

- Ethical & Fair Triage: AI is designed to mitigate human cognitive bias in triage. Crucially, it provides a Warning to augment care, not a final Diagnosis to replace the clinician. 🛡️

IMPACT & EXECUTION: $17B Problem Solved in 48 Hours

Financial Impact:

- Our solution directly targets preventable readmissions, saving hospitals $12,000–$20,000 per avoided incident.

Goal:

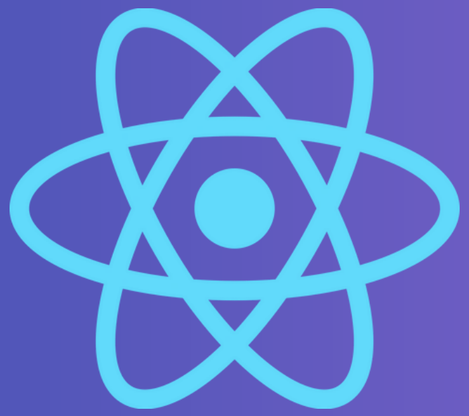
- Reduce targeted readmissions by 30%.

Patient Value:

- Aegis transforms care from reactive to proactive, prioritizing human effort where it matters most via AI triage.

Execution:

- In 48 hours, we built an end-to-end operational pipeline—from mobile capture to a cloud-served Deep Learning inference (MobileNetV2)—demonstrating robust technical capability under pressure.



THANK YOU