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[Your Name]

[Your Title]

[Your Company]

[Street Address, City, State ZIP]

May 14, 2026

[Opposing Counsel Name]

[Firm Name]

[Address]

Re: U.S. Patent No. 11484284 — Response to Assertion of Infringement

Dear Counsel,

We acknowledge receipt of your correspondence asserting infringement of U.S. Patent No. 11484284 (the "11484284 Patent"). After preliminary review, we have substantial concerns about the validity, enforceability, and scope of the asserted claims, summarized below. We reserve all rights and defenses.

1. Subject Patent — Summary

A concise summary of US Patent 11,484,284 is provided below, based on a review of the patent records.

Title: Methods and devices for processing heart sounds

Assignee: Florida International University FIU

Inventors: Valentina Dargam, Joshua Hutcheson

Filing Date: February 7, 2022

Issue Date: November 1, 2022

Abstract: Provided are the methods and devices to detect and quantify microstructural and functional differences in valve and cardiac disease using heart sounds, specifically for subjects suffering from early stages of valve remodeling. Such methods and devices can be used to detect and quantify microstructural and/or functional differences in, for example, aortic valves of...

2. Validity Concerns under 35 U.S.C. § 102 — Prior Art

We have identified prior-art references that, in our preliminary view, anticipate one or more asserted claims of the 11484284 Patent:

Prior Art Analysis for US Patent 11,484,284

Based on the patent file wrapper for US patent 11,484,284, the following prior art references were cited by the USPTO examiner during prosecution. An analysis of each reference and its potential impact on the patent's claims is detailed below.

1. WO2004035137A1: Acoustic cardiac assessment

- Full Citation: Gavriely, Noam. "Acoustic cardiac assessment." World Intellectual Property Organization, Publication No. WO2004035137A1.
- Publication Date: April 29, 2004 (Filing Date: October 21, 2002)
- Brief Description: This international patent application describes a method and system for the acoustic assessment of cardiac function. It discloses recording heart sounds and analyzing their features, such as frequency and timing, to detect cardiac abnormalities. The system can analyze the S1 and S2 heart sounds and correlate acoustic parameters with physiological conditions of the heart. The stated purpose is to provide a non-invasive diagnostic tool.
- Potential Anticipation of Claims:

Claim 1: This reference appears to disclose several...

3. Obviousness under 35 U.S.C. § 103

Independent of § 102, we believe the asserted claims are obvious in view of combinations of prior art that a person having ordinary skill in the art would have been motivated to combine:

Obviousness Analysis of US Patent 11,484,284 under 35 U.S.C. § 103

This analysis evaluates the claims of US patent 11,484,284 for obviousness by considering combinations of the prior art references cited during prosecution. The analysis is grounded in the perspective of a Person Having Ordinary Skill in the Art (PHOSITA) at the time of the invention (priority date: February 14, 2020), who would be familiar with medical signal processing, basic machine learning techniques, and cardiac physiology.

Analysis of Independent Claim 1

Claim 1 recites a system for processing a heart sound signal that measures, segments, and extracts acoustic features, then uses an unsupervised machine learning process to group the sound by disease stage, and finally recommends an anti-remodeling therapy if the features deviate from a norm.

Obviousness Combination: Claim 1 is likely obvious over WO2004035137A1 (Gavriely) in view of the general knowledge of a PHOSITA regarding the application of machine learning to signal processing.

1. Base Reference (Gavriely): Gavriely discloses the core of the...

4. Request

In light of the foregoing, we request that your client (i) provide a detailed claim chart identifying each accused product or service and mapping every limitation of each asserted claim, (ii) identify any prior art known to your client, including any references cited during prosecution or reexamination, and (iii) substantiate the basis for any damages or licensing demand. We are prepared to discuss the matter further once we have received and reviewed the foregoing.

Sincerely,

[Your Name]

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