No. 19-1149

IN THE UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

CARDIONET, LLC and BRAEMAR MANUFACTURING, LLC,

Plaintiffs-Appellants

v.

INFOBIONIC, INC.

Defendant-Appellee

Appeal from the U.S. District Court for the District of Massachusetts, No. 1:17-cv-10445-IT, Judge Indira Talwani

REPLY BRIEF OF APPELLANTS

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April 3, 2019

FORM 9. Certificate of Interest **Form 9**
Rev. 10/17

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

Cardionet, LLC, et al. **v.** InfoBionic, Inc.

Case No. 19-1149

CERTIFICATE OF INTEREST

Counsel for the:
☐ (petitioner) ■ (appellant) ☐ (respondent) ☐ (appellee) ☐ (amicus) ☐ (name of party)

Ching-Lee Fukuda, Esq.

certifies the following (use "None" if applicable; use extra sheets if necessary):

1. Full Name of Party Represented by me	2. Name of Real Party in interest (Please only include any real party in interest NOT identified in Question 3) represented by me is:	3. Parent corporations and publicly held companies that own 10% or more of stock in the party
Cardionet, LLC	None	BioTelemetry, Inc.
Braemar Manufacturing, LLC	None	BioTelemetry, Inc.

4. The names of all law firms and the partners or associates that appeared for the party or amicus now represented by me in the trial court or agency or are expected to appear in this court **(and who have not or will not enter an appearance in this case)** are:

Jack W. Pirozzolo

FORM 9. Certificate of Interest **Form 9**
Rev. 10/17

5. The title and number of any case known to counsel to be pending in this or any other court or agency that will directly affect or be directly affected by this court's decision in the pending appeal. *See* Fed. Cir. R. 47. 4(a)(5) and 47.5(b). (The parties should attach continuation pages as necessary).

The patent at issue in this appeal is asserted in CardioNet, Inc. v. The ScottCare Corporation, 2:12-cv-02516 (E.D. Pa.).

4/3/2019
Date

/s/ Ching-Lee Fukuda
Signature of counsel

Please Note: All questions must be answered

Ching-Lee Fukuda
Printed name of counsel

cc: _____

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INTRODUCTION

InfoBionic makes two main arguments in defending the district court's ineligibility decision. First, InfoBionic contends that the '207 patent is "nothing more than a computerized version of a doctor's approach to diagnosis"— a "do it on a computer" patent. Second, InfoBionic attacks the claims as overbroad and reliant on "generic functional language." Both arguments fail as a matter of law.

The fatal problem with InfoBionic's first contention is that there is not ***one shred*** of evidence in the record that supports it. In this brief, CardioNet addresses each and every basis upon which InfoBionic relies. The Court will see that InfoBionic relies ***entirely*** on unsupported attorney assertions repeated over a dozen times, a smattering of cites to the patent that do not logically support its contention, and a single prior art publication that in fact undermines InfoBionic's position. In addition to lacking any evidence that proves the '207 patent merely computerizes conventional techniques, InfoBionic ignores or dismisses evidence that proves the '207 patent discloses inventive concepts that improved existing cardiac monitoring. Under black-letter law, a district court cannot resolve factual disputes on the pleadings—and certainly

cannot base a Section 101 dismissal on unsupported attorney assertions while disregarding substantial contrary evidence. The district court erred here by doing just that.

InfoBionic's second contention conjures up concerns about claim overbreadth based on contradictory and legally irrelevant arguments untethered from the claim language and specification. InfoBionic creates a distraction by assessing whether the claims pass the vague test of providing "meaningful details," while failing to prove that the claims lack inventive concepts under the proper *Alice* step 2 test. At the same time, InfoBionic fails to raise any substantial preemption concern—much less a concern that would be fatal to the claims on a motion to dismiss. The district court erred by basing its dismissal, in part, on InfoBionic's unsubstantiated claim breadth concerns.

Due chiefly to these errors, the district court's decision should be reversed.

ARGUMENT

I. The District Court Erred in Finding the Asserted Claims of the '207 Patent to Be Ineligible Under Section 101

A. The Asserted Claims Recite Statutory Subject Matter

InfoBionic does not dispute that the asserted claims qualify as "machines" or "manufactures" under Section 101, and that to negate eligibility, the evidence must show, as a matter of law, that each claim is directed to an abstract idea ***and*** contains no inventive concept.

B. The Asserted Claims Do Not Recite an Abstract Idea, Under *Alice* Step 1

1. The Plain Focus of the Claims Is a Specific Device Rather than an Abstract Idea

As CardioNet explained in its opening brief, abstract ideas generally stretch beyond specific problems in a single field. Blue Br. 40-42. CardioNet further explained that the alleged abstract idea in this case—"that AF can be distinguished by focusing on the variability of the irregular heartbeat"—does not share that characteristic because it only applies to solving a specific problem (automatically detecting AF) in a specific field (cardiac monitoring technology) in a specific way (analyzing heart beat variability and premature ventricular beats). *Id.* Notably, the problem and solution is unique to electronic cardiac

monitoring, because a physician cannot computationally process raw ECG data and rely on software to automatically identify cardiac arrhythmia. Blue Br. 12-16. This Court has repeatedly found such technological inventions to be patent eligible. *See DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1259 (Fed. Cir. 2014).

In response, InfoBionic merely asserts in a footnote without any analysis that several cases "illustrate" that CardioNet's contention "is incorrect." Red Br. 22 n.4. Review of those cases, however, proves CardioNet's point.

The abstract idea in *Electric Power Grp. v. Alstrom S.A.* was "collecting information, analyzing it, and displaying certain results of the collection and analysis." 830 F.3d 1350, 1353 (Fed. Cir. 2016).

The abstract idea in in *FairWarning IP, LLC v. Iatric Sys., Inc.* was the "concept of analyzing records of human activity to detect suspicious behavior." 839 F.3d 1089, 1093 (Fed. Cir. 2016)

The abstract idea in *University of Florida Research Foundation, Inc. v. General Electric Co.* was "collecting, analyzing, manipulating, and displaying data." 916 F.3d 1363, 1368 (Fed. Cir. 2019) ("*Florida*").

Each abstract idea stretches beyond a specific problem in a specific field. In contrast, the district court here identified the purported abstract idea as the "idea that AF can be distinguished by focusing on the variability of the irregular heartbeat"—a specific solution to a specific problem in a specific field. Appx008. This purported abstract idea is so narrow and specific that it renders the concept of an "abstract idea" nearly meaningless. The district court's inability to identify an actual abstract idea rendered the rest of its *Alice* analysis aberrant and flawed. The district court, however, made an even more critical error as explained next.

2. The District Court Erred by Finding, Without *Any* Supporting Evidence, that the Asserted Claims Fail to Improve Cardiac Monitoring Technology

As CardioNet explained in its opening brief, the heart of the district court's *Alice* step 1 analysis is an erroneous factual finding that the asserted claims are not improvements to cardiac monitoring technology. Blue Br. 43-44. In response, InfoBionic confirms that this factual finding lies at the heart of the district court's decision. InfoBionic inaccurately asserts no less than 16 times that "claim 1 is

nothing more than a computerized version of a doctor's approach to diagnosis" (or variations thereof):

	InfoBionic Assertion	**Evidence Cited**
1	The "claims are directed to the abstract idea of identifying commonplace heart conditions in the same way doctors have long done" (Red Br. 2)	none
2	"[T]he claims are drawn to automating basic diagnostic processes that doctors have long used" (*id.*)	none
3	"[T]he claims only purport to automate those processes using generic components and off-the-shelf technology." (*id.*)	none
4	"CardioNet's claims are firmly rooted in longstanding human (medical) processes." (*id.* 4)	none
5	"The claims recite the basic steps that any doctor could (and would) perform to make such diagnoses—collecting and analyzing a patient's heartbeat data." (*id.* 11)	none
6	"[T]he claims use computers as mere tools to automate basic human steps" (*id.* 12)	none
7	"CardioNet's claims are … directed to … commonplace mental steps and mathematical calculations—and add nothing inventive." (*id.* 17)	none
8	"looking at the variability in time between heartbeats, taking into account any ventricular beats, has long been the way to diagnose those conditions." (*id.* 17-18)	Appx47(1:14-42, 1:49-56); Appx49(5:15-20); Appx51(9:22-32)
9	"Each of the steps in claim 1 is something that can be—and long was—performed by doctors viewing electrocardiograms." (*id.* 18-19)	Appx40(Fig. 2); Appx47(2:4-6); Appx49(5:21-23, 6:23-26, 6:55-58); Appx51(9:23-32); Appx185(¶8);

		Appx192(¶74)
10	"[C]laim 1 is nothing more than a computerized version of a doctor's approach to diagnosis." (*id.* 20)	none
11	The claims "point to such conventional activities and mental processes that doctors could perform in diagnosing AFib and AFlut and say 'do it on a computer.'" (*id.* 21)	none
12	"[C]laim 1 merely automates a traditional diagnostic process" (*id.* 24)	none
13	"[T]he ability to distinguish AFib and AFlut from other cardiac irregularities by accounting for premature ventricular beats [] is the type of mental process doctors long performed." (*id.* 29)	Appx47(3:6-12)
14	"[A] human would determine whether beat variability is 'relevant' to AFib and AFlut in the same manner recited in claim 1." (*id.* 35)	none
15	"[T]he [claimed] determination function is fundamentally the same thing that a human could do." (*id.* 35 n.6)	none
16	"[C]laim 1…does nothing more than perform basic medical processes to serve routine diagnostic goals using generic computer functionality." (*id.* 36-37)	none

InfoBionic relied on these same assertions before the district court, and the district court rested its decision on them. Appx006; Appx008-009; Appx011-013. The assertions, however, are incorrect, unsupported, and cannot justify dismissal on the pleadings.

The assertions are incorrect because the '207 patent introduced several new techniques that improved the field of electronic cardiac

monitoring technology. Blue Br. 16-18. The new techniques include using premature ventricular beats to compensate for ventricular arrhythmias, and using a non-linear transformation of an R to R interval, enabling more accurate detection of atrial fibrillation and atrial flutter. *Id.* The '207 patent claims these inventive techniques. *See* Blue Br. 19-26; *e.g.*, Appx047(1:49-65); Appx048(3:6-43).

InfoBionic points to nothing in the '207 patent that undermines those facts—much less evidence that conclusively proves as a matter of law that the '207 patent merely automates a conventional diagnostic method. There is no evidence in the '207 patent that suggests doctors had *ever* used premature ventricular beats to diagnose AF. To the contrary, the '207 patent states the opposite: "[t]he occurrence of ventricular beats is ***generally unrelated to AF***." Appx051(9:15-16). Similarly, there is no evidence in the patent that suggests doctors had ever used a non-linear transformation of an R to R interval to diagnose AF. That is because the problem being solved by the '207 patent is a technological problem unique to electronic cardiac monitoring, and does not apply to a doctor eyeballing ECG printouts.

InfoBionic cites the following portions of the patent as alleged support for its assertions: Fig. 2, 1:14-42, 1:49-56, 2:4-6, 3:6-12, 5:15-23, 6:23-26, 6:55-58, 9:22-32. Figure 2 and 1:14-42 provide general background but do not explain how doctors diagnosed AF prior to the '207 patent. The remaining portions, apart from the last one, describe the invention of the '207 patent—not what doctors did before the '207 patent. In the last portion, Appx051(9:23-32), the patent states that existing hardware can be used to detect premature ventricular beats. But that fact in no way shows that the AF-detection techniques claimed in the '207 patent previously existed. At most, that fact merely shows that hardware usable for ***one element*** of the '207 patent claims (the ventricular beat detector) previously existed. But before the '207 patent, the detection of premature ventricular beats was ***not*** used in detecting AF—it was used for other purposes "unrelated to AF" such as to "identify ventricular tachycardia." Appx051(9:15-18). Thus, InfoBionic's basic logic fails. The mere existence of something in the prior art does not prove that it was used for a particular purpose. Moreover, InfoBionic does not identify any off-the-shelf component that performed a non-linear transformation of an R to R interval. Thus,

nothing in the patent conclusively establishes that the patent merely computerizes a doctor's approach to diagnosis.

Aside from the patent, the district court does not cite any prior art, physician, expert, treatise, article, or concession that supports its holding that the patent fails to improve cardiac monitoring technology. InfoBionic tries to fill that gap by citing a single prior art document. Appx185(¶8); Appx192(¶74). That document not only fails to show that the '207 patent merely computerizes a doctor's approach to diagnosing AF, but it supports the opposite conclusion. The document, U.S. Patent Publication 2002/0065473, states that "trained medical care providers" can visually identify premature ventricular contractions "if they manifest in the clinical setting." Appx185(¶8). Even assuming that is true, it does not show or even suggest that doctors used that identification to improve AF diagnosis. Moreover, the publication later says that "episodes of AF and AFI are ***difficult if not impossible to be induced and observed by the physician in tests conducted in a clinic***" and that "***there is a recognized need to improve the capability of detecting***" the conditions. *Id.*(¶10). Thus, far from proving that doctors have long identified premature ventricular beats to

improve diagnosing AF, the sole evidence that InfoBionic cites apart from the '207 patent confirms that doctors' conventional diagnosis techniques were inadequate.

InfoBionic's inability to support the district court's key factual finding with any evidence is not surprising. InfoBionic does not dispute that computer-based ECG analysis opened up new possibilities unavailable to physicians examining ECG print-outs with the naked eye, because "visual inspection of the ECG provides discrete clinically interpreted features which cannot objectively capture the diversity of ECG abnormalities and morphologies." Blue Br. 12 & n.6. The '207 patent is one of many patents in the field that resulted from research and investment into creating new, computer-based ECG analysis devices. Blue Br. 13-14. InfoBionic ignores these facts, and argues against the grain of history that doctors have "long" mentally performed such computer-aided techniques. Ironically, InfoBionic has built its business on providing the very techniques it now disparages as "nothing more than a computerized version of a doctor's approach to diagnosis."[1]

[1] *See* InfoBionic Jan. 30, 2019 Press Release, available at: https://infobionic.com/infobionic-cardiac-monitor-disrupts-current-

In short, the record lacks ***any*** evidence that supports the district court's key factual finding that the '207 patent fails to improve existing cardiac monitoring technology, much less conclusive evidence when viewed in the light most favorable to CardioNet. False attorney assertions are no substitute for evidence. *Enzo Biochem, Inc. v. Gen-Probe, Inc.*, 424 F.3d 1276, 1284 (Fed. Cir. 2005) ("Attorney argument is no substitute for evidence."); *Icon Health & Fitness, Inc. v. Strava, Inc.*, 849 F.3d 1034, 1043 (Fed. Cir. 2017) ("Attorney argument is not evidence."); *Martahus v. Video Duplication Servs., Inc.*, 3 F.3d 417, 420 (Fed. Cir. 1993) ("mere attorney arguments unsubstantiated by record evidence are suspect at best."); *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1314 (Fed. Cir. 2016) ("Defendants provided no evidence that the process previously used by animators is the same as the process required by the claims."). The district court's decision did not heed this basic rule. It should be reversed.

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remote-monitoring-with-full-disclosure-beat-to-beat-technology/ ("Thanks to advances in data storage, transmission and machine learning, a new generation of remote cardiac monitors enables 24/7 monitoring, combined with sophisticated data analysis to help physicians cut through large amounts of data. Cardiologists can now monitor a patient's every heartbeat over extended periods and identify potentially dangerous arrhythmias as they happen…").

3. The Specification Confirms that the Claims Improve Existing Technology

As CardioNet explained in its opening brief, an improvement to an existing technological process is unlikely to be deemed an abstract idea. *Alice Corp. Pty. v. CLS Bank Intern.*, 134 S.Ct. at 2358; *McRO*, 837 F.3d at 1314; *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016).

Here, the patented device improved the field of electronic cardiac monitoring in important ways: it can distinguish AF from other types of cardiac arrhythmia, has improved positive predictability of AF, and can identify sustained AF episodes that have increased clinical significance, among other things. Blue Br. 44-45; Appx048(3:6-16). These improvements confirm that the patent is not directed to an abstract idea.

In response, InfoBionic dismisses these improvements as irrelevant because they are not "evident in" or "captured in" the claims. Red Br. 27-29. But as CardioNet explained, each claim captures one or more of the inventive concepts introduced by the patent that enable those improvements. Blue Br. 21-27. InfoBionic never disputes that fact. To the contrary, InfoBionic embraces it. *See* Red Br. 43-44

(admitting that the "claims recite" improving AF diagnosis by negatively weighting ventricular beats and using a non-linear transform). Moreover, the patent states that the advantages of the invention apply generally to "the cardiac monitoring systems and techniques" and "the systems and techniques described here." Appx048(3:6-44). Thus, the patent indicates that the improvements apply to all of the claims.

InfoBionic cannot show that any particular claim fails to improve existing cardiac monitoring technology. InfoBionic makes only two misguided attempts to do so. First, InfoBionic argues that claim 1 "applies to the use of *bad* logic to determine *relevance* and *poorly selected* criteria to identify events, with *inaccurate* results." Red Br. 28. InfoBionic presents no support for the idea that a skilled artisan would read claim 1 in such a bizarre manner to claim a dysfunctional device, particularly when the specification explains how to make a functional device. *Cf. Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005) ("Claims must always be read in light of the specification.") (citation omitted); Blue Br. 18-19. And even if a skilled artisan could hypothetically build a dysfunctional device within the scope of claim 1,

that would be irrelevant to eligibility because claim 1 would still capture functional devices that improve existing technology.

Second, InfoBionic argues real-time monitoring and mobile capability are optional, rather than expressly required, by the claims. Red Br. 29-30. This argument misses the point. Enabling real-time, mobile monitoring improves existing cardiac monitoring technology, regardless of whether doctors can use the same techniques in a delayed, fixed setting.

InfoBionic further contends that "'supposed benefits…not recited in the claims at issue'…cannot confer eligibility." Red Br. 29. That is not the law. The claims themselves need not recite the benefits of performing the claims, or explain how the claims improve existing technology. Accordingly, this Court often relies on the specification for that purpose. For instance, this Court stated in *Enfish* that:

> Moreover, our conclusion that the claims are directed to an improvement of an existing technology is bolstered by the specification's teachings that the claimed invention achieves other benefits over conventional databases, such as increased flexibility, faster search times, and smaller memory requirements.

822 F.3d at 1337. Similarly, in *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1313 (Fed. Cir. 2016), the Court stated:

> As the specification confirms, the claimed improvement here is allowing computers to produce "accurate and realistic lip synchronization and facial expressions in animated characters" that previously could only be produced by human animators.

See also Berkheimer v. HP Inc., 881 F.3d 1360, 1370 (Fed. Cir. 2018) (reversing grant of summary judgment, because "[t]hese claims recite a specific method of archiving that, according to the specification, provides benefits that improve computer functionality."); *Bascom Global Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1350 (Fed. Cir. 2016) (relying on specification to identify benefits of the invention).

These decisions make perfect sense. Patent claims "distinctly claim" the invention. 35 U.S.C. 112(b). The specification, by contrast, explains the invention and its benefits. InfoBionic's argument that that the claims themselves must regurgitate all the benefits of the invention is contrary to statute and would require bloated, lengthy claims.

InfoBionic quotes *Versata Develop. Group, Inc. v. SAP Am., Inc.*, 793 F.3d 1306, 1335 (Fed. Cir. 2015) for the proposition that "supposed benefits … not recited in the claims at issue" cannot confer eligibility.

Red Br. 29. InfoBionic misreads *Versata*. *Versata* merely found that the "claims [at issue in the case] are not directed to improving computer performance and do not recite any such benefit." *Versata*, 793 F.3d at 1335. The court did not hold that claims *must* recite their own benefits, or that benefits recited in the specification are irrelevant. InfoBionic cites *Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1322 (Fed. Cir. 2016) to support the same proposition, but, contrary to InfoBionic's argument that the specification is irrelevant, *Symantec* expressly states that "[t]he written description is particularly useful in determining what is well-known or conventional." *Id.* 1317. InfoBionic's citation of *Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1242 (Fed. Cir. 2016) likewise refutes InfoBionic's argument. *Apple* merely stated that "the difficulty of the programming details for this functionality is immaterial because these details are not recited in the actual claims." *Id.* The Court did not reject reliance on the specification to determine if the claims improved existing technology—to the contrary, the Court relied on the specification for that very purpose. *Id.* 1244.

In short, InfoBionic urges this Court to commit legal error by ignoring teachings in the '207 patent's specification confirming that the invention improves existing technology. InfoBionic presents no evidence whatsoever refuting those teachings. Therefore, highly relevant—and unrefuted—teachings in the specification about the benefits of the invention strongly support a finding of eligibility.

4. Precedent from the Same Field as the '207 Patent Supports Finding that the Asserted Claims Are Patent-Eligible

It is also important at *Alice* step 1 to compare the claims at issue to claims evaluated in prior Section 101 cases. *Alice*, 134 S.Ct. at 2356; *Enfish*, 822 F.3d at 1334. As CardioNet explained, that comparison supports a finding of eligibility here, because similar cardiac monitoring claims were previously found eligible. *See* Blue Br. 49-51 (citing *Arrhythmia Research Tech., Inc. v. Corazonix Corp.*, 958 F.2d 1053 (Fed. Cir. 1992)).

InfoBionic retorts that *Arrhythmia* "should no longer be relied on" because it relies on the outdated *Freeman-Walter-Abele* test. Red Br. 4, 30-31. InfoBionic's argument is not persuasive for several reasons.

First, the holding of *Arrhythmia*—that claims directed to diagnosing certain cardiac arrhythmias were patent-eligible—was never overruled, and InfoBionic cannot deny that the claims in *Arrhythmia* are factually highly analogous to the claims here. *Arrhythmia* therefore retains strong precedential value. *See Alice*, 134 S.Ct. at 2360 (comparing claims at issue to claims in past cases, despite the fact that the cases were 33 and 42 years old and did not apply the *Alice* test).

Second, InfoBionic overstates the extent to which this Court subsequently limited *Arrhythmia*. In *In re Bilski*, 545 F.3d 943, 959 (Fed. Cir. 2008), this Court "conclude[d] that the *Freeman-Walter-Abele* test is inadequate." The Court then stated in a footnote that in "*Arrhythmia*…and other decisions, those portions relying solely on the *Freeman-Walter-Abele* test should no longer be relied upon." *Id.* n.17. The Court's opinion is directed to replacing the *F-W-A* test with the machine-or-transformation test, and the Court never suggests that *Arrhythmia*'s holding of patent-eligibility for cardiac monitoring claims is infirm. In fact, a year after *Bilski* was decided, this Court cited *Arrhythmia* to show that it has "found processes involving mathematical algorithms used in computer technology patentable

because they claimed practical applications and were tied to specific machines." *In re Comiskey*, 554 F.3d 967, 979 n.14 (Fed. Circ. 2009).

Third, the *Arrhythmia* decision does not rely solely on the *Freeman-Walter-Abele* test. A substantial portion of the analysis in *Arrhythmia*—including the decision's preemption analysis, machine-or-transformation analysis, and comparison of the claims to claims upheld in past Supreme Court decisions—remains valid under the *Alice* framework. *See Arrhythmia*, 958 F.2d at 1059-60 (finding cardiac monitoring claims "analogous to those upheld in *Diehr*").

In short, as the most factually analogous precedent to the case at bar, *Arrhythmia* provides an important guidepost.

5. Precedent from Fields Outside of Cardiac Monitoring Also Supports a Finding of Eligibility

Throughout its opposition brief, InfoBionic tries to analogize this case to "do it on a computer" cases. These analogies fail because they rest entirely on InfoBionic's inaccurate claim that the '207 patent "is nothing more than a computerized version of a doctor's approach to diagnosis." Red Br. 20.

For example, InfoBionic cites *University of Florida Research Foundation, Inc. v. General Electric Co.*, 916 F.3d 1363 (Fed. Cir. 2019)

for the proposition that "[t]his Court routinely finds claims that recite computer steps for analyzing and presenting data to be ineligible on the pleadings, without further factual development, where there are no relevant fact disputes." Red Br. 47-48. The patent at issue in *Florida*, however, is nothing like the patent in this case. The *Florida* patent was "a quintessential 'do it on a computer' patent: it acknowledges that data from bedside machines was previously collected, analyzed, manipulated, and displayed manually, and it simply proposes doing so with a computer." 916 F.3d at 1367. The *Florida* patent "nowhere identifies, and we cannot see in the claims, any 'specific improvement to the way computers operate.'" *Id.* Neither the *Florida* "patent, nor its claims, explains *how* the drivers do the conversion that [plaintiff] points to." *Id.* 1368. In stark contrast, CardioNet's '207 patent identifies specific improvements to electronic cardiac monitoring technology. Blue Br. 16-18. The '207 patent explains in detail how to perform the claims. *Id.* 18-23. Accordingly, *Florida* has no relevance here.

The other cases that InfoBionic relies upon are irrelevant for the same reason. *Electric Power*, *FairWarning*, *Symantec*, *SmartGene*, and similar cases all involve broad abstract ideas done on a computer or

"fundamental practice[s] long prevalent." *Symantec*, 838 F.3d at 1314; *Electric Power*, 830 F.3d at 1353; *FairWarning*, 839 F.3d at 1093; *SmartGene, Inc. v. Advanced Biological Labs.*, SA, 555 F. App'x 950, 954-55 (Fed. Cir. 2014) (finding that "Claim 1 does no more than call on a 'computing device'…to do what doctors do routinely."). None of these cases addresses a patent that improves existing technology, like the '207 patent.

InfoBionic also cites several cases that address the law of nature exception to patent eligibility. *See* Red Br. 26 (citing *Cleveland Clinic Foundation v. True Health Diagnostics LLC*, 859 F.3d 1352, 1360-61 (Fed. Cir. 2017), *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 73-74 (2012), and *Ariosa Diagnostics, Inc. v. Sequenom*, Inc., 788 F.3d 1371, 1377 (Fed. Cir. 2015)). These cases are inapposite because the district court did not find, and InfoBionic did not argue either below or before this Court, that the '207 patent is directed to a law of nature. InfoBionic confuses the proper analysis by claiming that these law of nature cases support finding an abstract idea here, despite the fact that these cases have nothing to do with analyzing the abstract idea exception.

* * *

To summarize, InfoBionic erroneously classifies a specific solution to a specific problem as an abstract idea, falsely asserts without evidentiary support that the '207 patent merely computerized routine diagnostic methods, erroneously ignores the specification's teachings about the benefits of the invention, and relies on inapposite "do it on a computer" and law of nature cases. Such meritless arguments led the district court astray. The district court's decision should be reversed.

C. The Asserted Claims Contain an Inventive Concept Under *Alice* Step 2

As CardioNet explained in its opening brief, the district court erroneously found, in step 2 of the *Alice* inquiry, that the claims did not recite an inventive concept. The district court's key error in *Alice* step 2 mirrors its key error in *Alice* step 1—it adopted as fact InfoBionic's incorrect attorney assertions that the claims merely computerize conventional diagnostic techniques.

InfoBionic's defense of the district court's decision relies on the same incorrect attorney assertions recounted above, and must be rejected. In addition, as explained below, InfoBionic's attempts to conjure up concerns about claim breadth rely on contradictory and

legally irrelevant arguments untethered from the claim language and specification.

1. The District Court Erred by Finding, Without *Any* Supporting Evidence, that the Claims Are Generic and Conventional

As explained in CardioNet's opening brief, each claim at issue recites one or more inventive concepts that improved existing cardiac monitoring technology. Blue Br. 43-49, 55-58. Despite that fact, the district court found that the claims lack an inventive concept. Appx013.

InfoBionic defends the district court's decision by repeating the same inaccurate assertions addressed above—that "a human would" diagnose AF "in the same manner recited in claim 1" and that the '207 patent "does nothing more than perform basic medical processes to serve routine diagnostic goals using generic computer functionality." Red Br. 35-37. InfoBionic again cites no evidence that proves these inaccurate assertions. InfoBionic merely cites some the same portions of the '207 patent addressed above, *see supra* Section I.B.2, along with a passage from the end of the patent generally describing the hardware and software environment in which the invention can be implemented. Appx52(11:5-62). But the fact that the invention can be implemented in

both hardware and software proves nothing at all about whether doctors previously diagnosed AF in the manner recited in the claims.

None of InfoBionic's purported evidence proves that the '207 claims lack an inventive concept. As in other cases where this Court reversed a Section 101 challenge on the pleadings, InfoBionic fails to carry its burden of proving that "uncontested and properly considered facts conclusively establish" its entitlement dismissal. *See Aponte-Torres v. Univ. of P.R.*, 445 F.3d 50, 54 (1st Cir. 2006); *McRO*, 837 F.3d at 1315 (reversing dismissal where the movant "provided no evidence that the process previously used by [skilled artisans] is the same as the process required by the claims."). The district court's decision rests on a fundamental error of accepting unsupported attorney assertions as fact, and should be reversed.[2]

2. The District Court Erred in Finding that the Claims Lack Meaningful Limits

As CardioNet explained in its opening brief, the district court also erred in concluding that "[n]othing in these claims imposes a

[2] InfoBionic faults CardioNet for using the term "novel" in place of "inventive concept" once. Red Br. 39-40. CardioNet's brief makes clear that it properly focuses on inventive concepts. Blue Br. 55-57.

meaningful limit on the abstract idea of identifying AF by looking at the variability in time between heartbeats and taking into account ventricular beats." Appx014; Blue Br. 58-60.

InfoBionic responds that the claims recite only conventional computer technology, use functional language, and do not describe *how* to perform the claims. *See* Red Br. 20-21, 23, 26, 32-41. While InfoBionic scatters these claim breadth arguments throughout its brief, for simplicity CardioNet will address them all in this section.

The claims here are not overly broad. The claims recite specific components (*e.g.*, beat detector, ventricular beat detector) that use an improved ECG-analysis technique to identify a specific pair of heart arrhythmias (AF). Blue Br. 59-60. The patent defines "ventricular beats" as "premature ventricular beats," further narrowing the claim scope. Appx051(9:10-12); Appx013(n.4). InfoBionic has not and cannot identify any prior art device—conventional or otherwise—that used this combination of components and algorithms. Nor has InfoBionic identified any pre-existing approach by doctors to diagnosing AF that used this combination of components and algorithms. There is simply

no evidence in the record that any claim suffers from a fatal breadth problem.

InfoBionic takes issue with the "variability determination logic," "relevance determination logic," and "event generator" elements of claim 1. Red Br. 33. In doing so, InfoBionic crops the claim language to make those elements appear broader than as recited in the claims. Contrary to InfoBionic's argument, "variability determination logic" cannot be "*anything* that determines [] variability." It is logic that "determine[s] a variability in the beat-to-beat-timing of a collection of beats"—a specific function that is both narrow and well-understood by a skilled artisan in light of the specification. *E.g.*, Appx049(6:49-51). Likewise, "relevance determination logic" and the "event generator" cannot be "*anything* that identifies a relevance of the variability" and "*any* data processing device that generates an event." Red Br. 33. Instead, the event generator in conjunction with the relevance determination logic must "generate an event when the variability in the beat-to-beat timing is identified as relevant to the at least one of atrial fibrillation and atrial flutter in light of the variability in the beat-to-beat timing caused by ventricular beats identified by the ventricular

beats detector"—again a specific function that is both narrow and well-understood by a skilled artisan in light of the specification. *E.g.*, Appx049(6:52-58); Appx051(9:54-10:35). InfoBionic "oversimplif[ies] the claims by looking at them generally and failing to account for the specific requirements of the claims." *McRO*, 837 F.3d at 1313.

InfoBionic further complains that claim 1 "provides no meaningful detail on how a computer or other device accomplishes the claimed functions." Red Br. 23, 37. InfoBionic alleges that the "claims are silent on how to program the logic components" and "whether and how to apply any rules when generating an event." *Id.* InfoBionic's argument that the claims themselves must teach a person of ordinary skill in the art *how* to make the claimed device lacks merit. The specification fulfills that function by statute, 35 U.S.C. § 112, and here the specification explains in detail how to make the invention.[3]

[3] The *Two-Way* and *Apple* cases cited by InfoBionic are distinguishable. In *Two-Way Media Ltd. v. Comcast Cable Commc'ns*, LLC, 874 F.3d 1329, 1337 (Fed. Cir. 2017), the Court found that "claim 1 manipulates data but fails to do so in a non-abstract way" and also lacked an inventive concept. In *Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1241 (Fed. Cir. 2016), the Court found that the claims "are not directed to a specific improvement in the way computers operate." As discussed herein, the '207 claims are more specific than those in *Two-Way* and *Apple* and contain inventive concepts.

InfoBionic's related argument that claim 1 must recite more specific rules for generating an event also fails. The scope of claim 1 is commensurate with the scope of the invention. InfoBionic has not proven otherwise. CardioNet has every right to claim the full scope of its invention. *Thorner v. Sony Computer Entm't Am. LLC*, 669 F.3d 1362, 1367 (Fed. Cir. 2012) ("The patentee is free to choose a broad term and expect to obtain the full scope of its plain and ordinary meaning"); *Sitrick v. Dreamworks, LLC*, 516 F.3d 993, 999 (Fed. Cir. 2008) ("The scope of the claims must be less than or equal to the scope of the enablement"); *McRO*, 837 F.3d at 1313 ("Claims to the genus of an invention, rather than a particular species, have long been acknowledged as patentable."). That is especially so where, as here, the claimed method does not preempt all cardiac monitoring devices that detect AF. *See McRO*, 837 F.3d at 1315 (rejecting concern about claim breadth where "[t]here has been no showing that any rules-based lip-synchronization process must use" the claimed methods).

Finally, InfoBionic accuses CardioNet of refusing to "construe the claims to require any specific implementation disclosed in the specification." Red Br. 28. The accusation is baseless. CardioNet has

no obligation to re-write the claims in means-plus-function format, as InfoBionic effectively demands, in response to a motion to dismiss. Likewise, CardioNet's statements to the district court that the claims are not "limited to the specific methodologies that are disclosed in the specification" accurately states a black-letter principle of claim construction. *Phillips*, 415 F.3d at 1323 ("although the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments."). InfoBionic's attempts to coax a narrow claim construction out of CardioNet should be rejected.

In sum, InfoBionic's attempts to conjure concerns about claim breadth rely on contradictory and legally irrelevant arguments untethered from the claim language and specification. To the extent InfoBionic wishes to attack the claims as overbroad, it will have ample opportunity to do so based on Sections 102, 103, or 112. *See Visual Memory LLC v. NVIDIA Corp.*, 867 F.3d 1253, 1261 (Fed. Cir. 2017).

3. The Asserted Dependent Claims Are Eligible

CardioNet's opening brief explained that each asserted claim—including each dependent claim—recites an inventive concept. Blue Br. 24-26. That alone suffices to pass *Alice* step 2. *Alice*, 134 S.Ct. at 2357.

InfoBionic argues that the dependent claims are not eligible because they "provide no meaningful details" and "add only broad, conventional categories of mathematical operations." Red Br. 43-44. As a threshold matter, "providing meaningful details" is not the standard for determining patent eligibility. Instead, *Alice* step 2 asks if the claims contain an inventive concept. *Alice*, 134 S.Ct. at 2357.

In addition, InfoBionic presents no evidence that a person of ordinary skill in the art would have found the dependent claims to lack "meaningful details." For example, weighting premature ventricular beats as negatively indicative of AF is specific, and the specification even lists exemplary weights. Appx051(10:21-25). The same is true for the non-linear function of a beat-to-beat interval that determines relevance of variability in the beat-to-beat timing in a collection of beats in claims 12 and 22. The specification contains copious detail about this non-linear function, and a person of ordinary skill in the art would have

understood its scope based on the specification and surrounding claim language. Appx050(7:59-8:36). InfoBionic miscites *Parker v. Flook*, 437 U.S. 584, 586 (1978) for the proposition that the ***claims*** must explain the weighting factor and the other variables for determining relevance. Red Br. 43. In fact, *Flook* states that the "***patent application*** does not purport to explain how to select…the weighting factor, or any of the other variables." 437 U.S. at 586. That is not the case here.

InfoBionic further contends that any use of a mathematical function is an abstract idea that cannot confer eligibility. Red Br. 44. That is not the law. The Supreme Court decisively rejected this argument in *Diamond v. Diehr*, 450 U.S. 175, 192 (1981) by holding that "when a claim containing a mathematical formula implements or applies that formula in a structure or process which, when considered as a whole, is performing a function which the patent laws were designed to protect," then the claim is eligible. That is the case here.

Finally, InfoBionic argues that even "groundbreaking" techniques are not enough for eligibility. Red Br. 44-45. While that may be true, inventive concepts are enough for eligibility. *Alice*, 134 S.Ct. at 2357. InfoBionic's semantical arguments cannot make up for its failure to

prove its key claim—that the '207 patent lacks an inventive concept because it merely computerizes routine diagnostic methods.

4. The Machine-or-Transformation Test Supports a Finding of Patentability

The district court overlooked an important clue to patentability by not applying the machine-or-transformation test. Blue Br. 61. Incredibly, InfoBionic contends that the claims here fail the machine-or-transformation test, despite the fact that each claim is directly tied to a cardiac monitoring device that detects AF in a particular way. Red Br. 41-42. InfoBionic's contention lacks credibility on its face. The *Ultramercial* and *Versata* cases cited by InfoBionic refute its argument—the claims in those cases were tied only to general purpose computers. *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 716 (Fed. Cir. 2014) ("The claims of the '545 patent, however, are not tied to any particular novel machine or apparatus, only a general purpose computer."); *Versata*, 793 F.3d at 1335 ("The claims are directed to price determination and merely use a computer to improve the performance of that determination"). Thus, the machine-or-transformation test strongly supports a finding of patentability here.

D. The District Court Erred in Dismissing the Case on the Pleadings

1. The District Court Erred by Resolving Factual Disputes on the Pleadings

InfoBionic claims that there are no "relevant" factual disputes in this case. Red Br. 47. That is wrong. The key factual dispute is simple: whether the claims are directed to an improvement to existing technology and contain an inventive concept, as the patent shows, or whether the claims are "nothing more than a computerized version of a doctor's approach to diagnosis," as InfoBionic contends. *See supra*, Section I.B.2. That is a quintessential factual dispute that cannot be decided adversely to CardioNet on a motion to dismiss based on attorney argument and purported evidence that does not support (much less conclusively prove) InfoBionic's contention. *Berkheimer*, 881 F.3d at 1369 ("[w]hether something is well-understood, routine, and conventional to a skilled artisan at the time of the patent is a factual determination."); *Aatrix*, 882 F.3d at 1128.[4]

[4] InfoBionic claims that CardioNet "was unable to identify any purported disputed facts" to the district court. Red Br. 50. That is incorrect. CardioNet repeatedly identified the presence of an inventive concept in the claims and whether the claims are conventional as key

While in some cases uncontested facts can conclusively prove ineligibility on the pleadings, this is not such a case. *Compare Florida*, 916 F.3d at 1367 (finding ineligibility where the patent "nowhere identifies, and we cannot see in the claims, any 'specific improvement to the way computers operate.'"). Unsupported attorney argument repeated a dozen times cannot prove that the '207 claims were merely conventional, or render a core factual dispute "irrelevant."[5]

2. The District Court Erred by Neglecting to Solicit InfoBionic's Claim Construction Positions

InfoBionic does not contest the fact that on a motion to dismiss, the court should construe the claims in the light most favorable to the patentee. Red Br. 51. InfoBionic also does not contest the fact that the district court never elicited, and InfoBionic never provided, its proposed claim constructions. While InfoBionic faults CardioNet for not providing more specific claim constructions, InfoBionic ignores the fact

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factual disputes. Appx512(5:15-20); Appx513-514(6:13-7:15); Appx518(11:11-15); Appx445-447; Appx450-451.

[5] InfoBionic's argument about CardioNet's amended complaint is a red herring. CardioNet need not cut and paste statements from the patent into the complaint, because the patent is part of the complaint. *Nisselson v. Lernout*, 469 F.3d 143, 150 (1st Cir. 2006).

that claim construction is not a one-sided exercise and that the accused infringer commonly proposes narrowing constructions as a case unfolds.

Undoubtedly, had the case been allowed to proceed to the claim construction stage, InfoBionic would have offered narrower constructions limited to the specific implementations disclosed in the specification. And had the district court adopted InfoBionic's narrower constructions, and then proceeded to a Section 101 analysis, the district court likely would have come to a different conclusion about eligibility. For this reason, adopting broader constructions for purposes of Section 101 analysis, before any claim construction proceeding takes place, is the antithesis of adopting constructions that are "most favorable" to the patentee, as required by the law. *See Content Extraction and Transmission, LLC v. Wells Fargo Bank, NA*, 776 F.3d 1343, 1349 (Fed. Cir. 2014). It is also inequitable and inefficient to allow a party moving for dismissal to simultaneously base a substantial portion of its argument on claim breadth grounds, while withholding its claim construction positions until after the motion to dismiss is resolved.

Accordingly, the district court lacked a complete record to assess whether claim construction would affect the patent-eligibility of the

claims at issue. This error compounded the district court's primary error of making factual findings that contradict the teachings of the patent, without any supporting evidence.

CONCLUSION

The district court's judgment should be reversed.

Dated: April 3, 2019

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CERTIFICATE OF SERVICE

I declare that I, Ching-Lee Fukuda, am employed by the firm of Sidley Austin, LLP, located at 787 Seventh Avenue, New York, NY 10019.

I declare that on April 3, 2019, I served a true and correct copy of the **Reply Brief of Appellants** by electronic means (CM/ECF) and therefore served all counsel of record.

I certify under penalty of perjury under the laws of the United States of America that the foregoing information contained in this Certificate of Service is true and correct.

Dated: April 3, 2019

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CERTIFICATE OF COMPLIANCE

This brief complies with the type-volume limitation of Federal Circuit Rule 32(a). The brief contains 6903 words, excluding the parts of the brief exempted by Federal Rule of Appellate Procedure 32(f) and Federal Circuit Rule 32(b).

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