UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS

CARDIONET, LLC, and BRAEMAR MANUFACTURING, LLC,	*	
Plaintiffs,	*	
	*	Civil Action No. 17-cv-10445-IT
v.	*	
INFOBIONIC, INC.,	*	
Defendant.	*	

MEMORANDUM AND ORDER

October 16, 2018

TALWANI, D.J.

Plaintiffs CardioNet, LLC ("CardioNet") and Braemar Manufacturing, LLC ("Braemar") allege that products manufactured and distributed by Defendant InfoBionic, Inc. ("InfoBionic") infringe on Plaintiffs' patent, U.S. Patent Number 7,941,207 ("the '207 patent"). Am. Compl. ("Complaint") [#25]. InfoBionic moves to dismiss Plaintiffs' Complaint [#25], arguing that the '270 patent is invalid under 35 U.S.C. § 101 as construed by Alice Corp. Pty. Ltd. v. CLS Bank Intern., 134 S. Ct. 2347, 2354 (2014), and its progeny, because the asserted claims are directed to an abstract idea and are patent-ineligible. Mot. to Dismiss 1 [#36]. Finding that the claims at issue are directed at patent-ineligible concepts, and that the elements of each claim do not transform the claim into a patent-eligible application, the court ALLOWS Defendant's Motion to Dismiss [#36].

I. Background

The ’207 patent was issued to CardioNet in 2011. Cardionet assigned the ’207 patent to Braemar, and Braemar granted CardioNet an exclusive license to make, use, offer to sell, sell, import, license, and exploit the ’207 patent. Compl. ¶¶ 7-8 [#25].

The ’207 patent is entitled “Cardiac Monitoring.” Id. ¶ 7 [#25]. It relates to “[s]ystems and techniques for monitoring cardiac activity.” Compl. Ex. A (’207 Patent) 2 [#25-1]. The patented methods monitor the electrical activity of the heart to identify two types of heart arrhythmias, atrial fibrillation and atrial flutter (collectively, “AF”), both of which are associated with stroke, congestive heart failure, and cardiomyopathy. Id. at 11 col. 1:31-32. The ’207 patent claims to distinguish AF from other types of cardiac arrhythmia by monitoring the variability between heartbeats, id. at col. 1:49-50, in a manner that can “provid[e] improved positive predictability of AF,” and “identify sustained AF episodes, where AF continues for more [than] approximately 20 beats and has an increased clinical significance.” Id. at 12 col. 3:14-15, 17-20. The patent claims that the systems and techniques “are well-adapted to monitoring cardiac signals of ambulatory patents who are away from controlled environments such as hospital beds or treatment facilities.” Id. at col. 3:27-30. The patent further claims that “the described systems and techniques are also well-adapted to real-time monitoring of arrhythmia patients, where minimal delays in distinguishing between different types of cardiac arrhythmia can speed the delivery of any urgent medical care,” and “require minimal computational resources.” Id. at col. 3:35-40.

The Complaint [#25] asserts that InfoBionic’s first and second generation MoMe Kardia Systems infringe one or more claims of the ’207 patent, including claims 1, 2, 3, 7, 10, 11, 12, and 22. Compl. ¶¶ 19-31 [#25].

II. Discussion

A. *Standard*

To survive a motion to dismiss, a plaintiff "must state a claim that is plausible on its face." Bell Atl. Corp. v. Twombly, 550 U.S. 544, 570 (2007). In resolving the motion, the court must "begin by identifying and disregarding statements . . . that merely offer 'legal conclusion[s] couched as . . . fact[].'" Occasion-Hernández v. Fortuño-Burset, 640 F.3d 1, 12 (1st Cir. 2011) (alteration in original) (quoting Ashcroft v. Iqbal, 556 U.S. 662, 668 (2009)). Nonconclusory factual statements contained in the pleadings must then be viewed as true, id., and the court must view these facts in the light most favorable to the nonmovant and draw all reasonable inferences therefrom to the nonmovant's behalf. Id. at 17.

"While most Rule 12(b)(6) motions are premised on a plaintiff's putative failure to state an actionable claim, such a motion may sometimes be premised on the inevitable success of an affirmative defense." Nisselson v. Lernout, 469 F.3d 143, 150 (1st Cir. 2006). "Dismissing a case under Rule 12(b)(6) on the basis of an affirmative defense requires that '(i) the facts establishing the defense are definitively ascertainable from the complaint and the other allowable sources of information, and (ii) those facts suffice to establish the affirmative defense with certitude.'" Id. (quoting Rodi v. S. New Eng. Sch. of Law, 389 F.3d 5, 12 (1st Cir. 2004)); see also Aatrix Software, Inc. v. Green Shades Software, Inc., 882 F.3d 1121, 1125 (Fed. Cir. 2018) ("patent eligibility can be determined at the Rule 12(b)(6) stage . . . only when there are no [plausible] factual allegations that . . . preclude dismiss[al]").

Because the court accepts the factual allegations in the complaint and other allowable sources of information as true for purposes of a motion to dismiss, "[i]f there are claim construction disputes, . . . the court [may] proceed by adopting the non-moving party's construction," and construing the patent claims in a manner most favorable to the non-moving

party. Aatrix Software, 882 F.3d at 1125; see also Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat'l Ass'n, 776 F.3d 1343, 1349 (Fed. Cir. 2014) (court applies the non-moving party's construction of the terms of the patent for purposes of the motion).

Section 101 states, "[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title." 35 U.S.C. § 101. The subject matter of a patent must be patentable under § 101; otherwise, the patent is invalid. See Content Extraction, 776 F.3d at 1346. The Supreme Court has held that this section contains an "implicit exception: [l]aws of nature, natural phenomena, and abstract ideas are not patentable." Alice, 134 S. Ct. at 2354 (quoting Ass'n for Molecular Pathology v. Myriad Genetics, Inc., 133 S. Ct. 2107, 2116 (2013)). Although "all inventions at some level embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas," these three patent-ineligible exceptions prevent "monopolization" of the "basic tools of scientific and technological work," Mayo Collaborative Servs. v. Prometheus Labs., Inc., 132 S. Ct. 1289, 1293 (2012), and the "inhibit[ion of] further discovery by improperly tying up the future use of these building blocks of human ingenuity," Alice, 134 S. Ct. at 2354 (internal quotation marks omitted) (quoting Mayo, 132 S. Ct. at 1301).

"[I]n applying the § 101 exception, [the court] must distinguish between patents that claim the 'building[g] block[s]' of human ingenuity and those that integrate the building blocks into something more, thereby 'transform[ing] them into a patent-eligible invention.'" Id. at 2354, (quoting Mayo, 132 S. Ct. at 1294, 1303). To do so, the court must perform a two-step analysis.

First, the court must determine whether the claims at issue are directed to laws of nature,

natural phenomena, or abstract ideas. Id. at 2355.[1] Claims are directed to an abstract idea if, "considered in light of the specification, . . . 'their character as a whole is directed to'" an abstract idea. Enfish, LLC v. Microsoft Corp., 822 F.3d 1327, 1335 (Fed. Cir. 2016) (quoting Internet Patents Corp. v. Active Network, Inc., 790 F.3d 1343, 1346 (Fed. Cir. 2015)). "The 'abstract ideas' category embodies 'the longstanding rule that [a]n idea of itself is not patentable.'" Alice, 134 S. Ct. at 2355 (internal quotation marks omitted) (alteration in original) (quoting Gottschalk v. Benson, 409 U.S. 63, 67 (1972)). In Benson, for example, the court rejected claims involving an algorithm for "converting [binary-coded decimal] numerals to pure binary form," holding that the claimed patent was "in practical effect . . . a patent on the algorithm itself." 409 U.S. at 71-72. Similarly, in Parker v. Flook, the court held a mathematical formula for computing 'alarm limits' in a catalytic conversion process was an abstract idea. 437 U.S. 584, 594-95 (1978).

If the claims at issue are directed to laws of nature, natural phenomena, or abstract ideas, the court then considers the elements of each claim both "individually and 'as an ordered combination'" to determine whether the additional elements "'transform the nature of the claim' into a patent-eligible application." Alice, 134 S. Ct. at 2350 (quoting Mayo, 132 S. Ct. at 1298, 1297). The Supreme Court has "described step two of this analysis as a search for an 'inventive concept' – i.e., an element or combination of elements that is 'sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.'" Id. (alteration in original) (quoting Mayo, 132 S. Ct. at 1294). "Purely 'conventional or obvious' '[pre]-solution activity' is normally not sufficient to transform an unpatentable law of nature into a patent-eligible application of such a law." Mayo, 566 U.S. at 79 (quoting Flook, 437 U.S. at

[1] Because Defendant argues that the '207 patent is directed to an abstract idea, the court focuses its discussion on this exclusion.

590); see also Bilski v. Kappos 561 U.S. 593, 610-11 (2010) ("[T]he prohibition against patenting abstract ideas 'cannot be circumvented by' . . . adding 'insignificant post-solution activity.'" (quoting Diamond v. Diehr, 450 U.S. 175, 191-92 (1981))). To survive step two, the additional activity must "transform the claim into 'significantly more than a patent upon the' ineligible concept itself." Rapid Litig. Mgmt., Ltd. v. CellzDirect, Inc., 827 F.3d 1042, 1047 (Fed. Cir. 2016) (quoting Mayo, 132 S. Ct. at 1294).

B. *Step One: Are Claims Directed to a Patent Ineligible Concept?*

InfoBionic contends that "[t]he '207 patent claims are directed to the abstract idea of identifying [AF] by looking at the variability in time between heartbeats and taking into account ventricular beats." Def.'s Mem. 11 [#37]. InfoBionic argues that because AF "are characterized by the 'loss of synchrony between the atria and the ventricles' leading to 'irregular' heart beating, looking at the variability in time between heartbeats, taking into account any ventricular beats, has long been the way to diagnose these conditions." Id. (quoting '207 Patent 11 col. 1:23-29 [#25-1]). InfoBionic argues further that "[t]he '207 patent . . . claims automatically identifying [AF] in the same way doctors have always done," and "broadly claims the automated process itself without specifying a particular implementation." Id. InfoBionic asserts that the '207 patent "does not claim any new or improved approach to detecting [AF]." Id. Plaintiffs dispute that the '207 patent is directed to an abstract idea, and argue instead that the '207 patent "represents an improvement to the function of cardiac monitoring devices," Pls.' Opp'n 10 [#40], and that the asserted claims "are directed to a concrete improvement in the signal processing and analysis capabilities of cardiac monitoring devices." Id. at 14.

To determine whether computerized technology is directed to an abstract idea, the court "asks whether the focus of the claims is on the specific asserted improvement in computer

capabilities . . . or, instead, on a process that qualifies as an 'abstract idea' for which computers are merely invoked as a tool." Enfish, 822 F.3d at 1335-36. If "the plain focus of the claims is on an improvement to computer functionality itself," it is not directed to an abstract idea. Id. at 1336. However, if the "claims 'simply add[] conventional computer components to well-known business practices,' . . . or 'a purely conventional computer implementation of a mathematical formula,' or 'generalized steps to be performed on a computer using conventional computer activity,'" it is directed to an abstract idea. In re TLI Commc'ns LLC Patent Litig., 823 F.3d 607, 612 (Fed. Cir. 2016) (quoting Enfish, 822 F.3d at 1338).

The Federal Circuit has found that computer-implemented claims for collecting and analyzing data to find specific events may be patent-ineligible abstract ideas. In FairWarning IP, LLC v. Iatric Sys., Inc., for example, the Federal Circuit considered a patent that "relate[d] to a system and method of detecting fraud and/or misuse in a computer environment based on analyzing data." 839 F.3d 1089, 1093 (Fed. Cir. 2016). The patented method "collect[ed] information regarding accesses of a patient's personal health information, analyze[d] the information according to one of several rules . . . to determine if the activity indicates improper access, and provide[d] notification if it determine[d] that improper access ha[d] occurred." Id. In holding that the patent was an ineligible abstract idea, the court emphasized that "the 'realm of abstract ideas' includes 'collecting information, including when limited to particular content,'" and that "analyzing information by steps people go through in their minds, or by mathematical algorithms, without more, [are] essentially mental processes within the abstract-idea category." Id. (quoting Elec. Power Grp., LLC v. Alstom S.A., 830 F.3d 1350, 1353 (Fed. Cir. 2016)). The court also explained that "merely presenting the results of abstract processes of collecting and analyzing information, without more (such as identifying a particular tool for presentation), is

abstract as an ancillary part of such collection and analysis." Id. (quoting Elec. Power, 830 F.3d at 1353). The court concluded that because the claims at issue were "directed to collecting and analyzing information to detect misuse and notifying a user when misuse is detected," the claims were patent ineligible. Id. at 1094.

Similarly, in Berkheimer v. HP Inc., the Federal Circuit found at step 1 that the claims of a patent for a digital asset management system were "directed to the abstract ideas of parsing, comparing, storing and editing data," and were similar to other claims the court had found directed to an abstract idea in prior cases. 881 F.3d 1360, 1366 (Fed. Cir. 2018) (citing In re TLI Commc'ns LLC Patent Litig., 823 F.3d at 613 (claims recited method for recording images, transmitting the images and classification information, and storing the images based on the classification information directed to the abstract idea of "classifying and storing digital images in an organized manner"), and Content Extraction, 776 F.3d at 1347 (claims recited method of extracting data from hard copy documents, recognizing specific information from the data and storing the information directed to the abstract idea of collection data, recognizing certain data within the collected data set, and storing that recognized data in a memory)).

Review of the '207 patent shows that the claims add conventional computer components to the abstract idea that AF can be distinguished by focusing on the variability of the irregular heartbeat. The specifications describe "systems and techniques" with various methods for monitoring that variability. '207 Patent 11 col. 1:46–12, col. 3:5 [#25-1]. The patent claims at issue in this case thus appear to be similarly directed to collecting and analyzing information to detect particular anomalies, and notifying the user when the anomaly is detected.

Plaintiffs respond that the '207 patent is not directed to an abstract idea because it "represents an improvement to the function of cardiac monitoring devices." Pls.' Opp'n 14 [#40].

They argue that "[t]hrough the use of specifically programmed rules, termed 'determination logic,' coupled with beat detecting technology and an event generator, the invention improves a function specific to cardiac monitoring devices, namely the processing and analysis of cardiac signals to achieve more accurate and clinically significant AF detection." Id. (internal citation omitted).

Plaintiffs' response is more appropriately given at step 2. In any event, as InfoBionic argues, and as discussed more at step 2 *infra*, the claims that Plaintiffs assert do not recite any specific implementation or improvement in computerized medical technology. See '207 Patent [#25-1]; Def.'s Mem. 15 [#37]. The idea of using a machine to monitor and analyze heart beat variability and interfering beats so as to alert the user of potential AF events may well improve the field of cardiac telemetry, but Plaintiffs do not identify improvements to any particular computerized technology. Thus, the '207 patent is directed to an abstract idea.

C. *Step Two: Does the Inventiveness of the Claim make it Patent Eligible?*

Plaintiffs contend that the claims of the '207 patent recite an inventive concept because they "utilize determination logic together with beat detectors and event generators to solve the technical problem of cardiac monitors incorrectly identifying AF events." Pls.' Opp'n 20 [#40]. Plaintiffs compare the '207 patent claims to the claims in Bascom Global Internets Servs., Inc. v. AT&T Mobility LLC, 827 F.3d 1341 (Fed. Cir. 2016), and Amdocs (Israel) Ltd. v. Openet Telecom, Inc., 841 F.3d 1288 (Fed. Cir. 2016), and to the T wave filter claimed by U.S. Patent No. 7,009,715 that this court found patent-eligible in the earlier litigation between these parties. Pls.' Opp'n 20-23 [#40].

In Bascom, the Federal Circuit found that the patented claims recited an inventive concept because they used a software-based invention to improve performance of a prior art

internet filter. 827 F.3d at 1351. Bascom recognized that "[f]iltering content on the Internet was already a known concept," but noted that "prior art filters were either susceptible to hacking and dependent on local hardware and software, or confined to an inflexible one-size-fits-all scheme," and that the patent "describes how its particular arrangement of elements is a technical improvement over prior art ways of filtering such content." Id. at 1350. It emphasized that the patented claims "do not preempt the use of the abstract idea of filtering content on the Internet or on generic computer components performing conventional activities." Id. at 1352.

In Amdocs, the Federal Circuit found that the claim for a computer program for processing network accounting information recited an inventive concept because it utilized a "distributed, remote enhancement that produced . . . reduced data flows and the possibility of smaller databases." 841 F.3d at 1302. The arrangement was "not so broadly described to cause preemption concerns," but rather was "narrowly circumscribed to the particular systems outlined," which "served to improve the performance of the system itself." Id.

Plaintiffs argue that their patent claims are analogous to those in Bascom and Amdocs because "the claims here improve on previous cardiac monitors that inaccurately identified AF in the presence of a premature ventricular beat and offer further advantages over the prior art that allow accurate AF identification outside the clinic and in real time," thus reciting "a technological solution to a technological problem." Pls.' Opp'n 21 [#40] (citing Amdocs, 841 F.3d at 1288).

Plaintiffs also assert that the patent is analogous to the T wave filter claimed by U.S. Patent No. 7,009,715. In the earlier CardioNet litigation, this court found that the T wave filter claim recited an inventive concept because the patented process of "*diminishing* the intensity of the T wave while *preserving or amplifying* the R wave in an electrocardiogram . . . cannot be

performed in the human mind," and is therefore "tied to a machine" and meets the "machine-or-transformation test." CardioNet, LLC v. InfoBionic, Inc., 2017 WL 1788650, at *9-10 (D. Mass. May 4, 2017) (order allowing in part and denying in part renewed motion for judgment on the pleadings).

Under the machine-or-transformation test, however, a claimed process is patent eligible under § 101 if "it is tied to a particular machine or apparatus" and "the use of a specific machine or transformation of an article . . . impose[s] meaningful limits on the claim's scope to impart patent-eligibility." SiRF Tech., Inc. v. Int'l Trade Comm'n, 601 F.3d 1319, 1332 (Fed. Cir. 2010) (quoting In re Bilski, 545 F.3d 943, 954, 961 (Fed. Cir. 2008)).

> "In order for the addition of a machine to impose a meaningful limit on the scope of a claim, it must play a significant part in permitting the claimed method to be performed, rather than function solely as an obvious mechanism for permitting a solution to be achieved more quickly, i.e., through the utilization of a computer for performing calculations."

Id. at 1333. "[S]imply implementing a mathematical principle on a physical machine, namely a computer, [i]s not a patentable application" of an otherwise abstract idea. Alice, 134 S. Ct. at 2357 (quoting Mayo, 132 S. Ct. at 1301).

InfoBionic argues that the '207 patent appears to recite "collecting cardiac data, determining its relevance, and then identifying a cardiac event," without identifying any specific "technical solutions or detailed software for performing the claimed functions."[2] Def.'s Mem. 17, 23 [#37]. InfoBionic contends further that the patent recites only technological functions which "can be performed using conventional, off-the-shelf, cardiac monitoring equipment and

[2] InfoBionic argues that "the recited 'beat detector' and 'ventricular beat detector' can be any equipment that detects heartbeats," and that "the 'variability determination logic' by its literally terms can be *anything* that 'determines [] variability,' the 'relevance determination logic' literally can be *anything* that 'identif[ies] a relevance of the variability,' and the 'event generator' can be *any* 'data processing device' that 'generate[s] an event.'" Def.'s Mem. 18 [#37] (quoting '207 Patent 13 col. 5:15-20, 55-56; 15 col. 9:22-32 [#25-1]).

conventional computer hardware and/or software."[3] Def.'s Mem. 17-18 [#37]. And, InfoBionic argues that the conventional components are not put together so as to add anything inventive by their combination. Rather, the claim elements "merely recite the conventional components that perform their usual functions put together in a standard way to perform a commonplace diagnostic method: collect data, analyze it, and identify medically significant events." Id. at 14. InfoBionic contends that the claims are therefore lacking an inventive concept and are patent ineligible. Id. at 15-16. For support, InfoBionic cites to FairWarning IP, 839 F.3d 1089, Intellectual Ventures I LLC v. Symantec Corp., 838 F.3d 1307 (Fed. Cir. 2016), and Elec. Power, 830 F.3d 1350.

In FairWarning IP, the Federal Circuit rejected the argument that the claims "solve technical problems unique to the computer environment and thus should be patent eligible" where the claims did not recite "technological advance relating to accessing and combining disparate information sources," or otherwise "propose a solution or overcome a problem specifically arising in the realm of computer technology." 839 F.3d at 1091. Instead, the court found that the claims were rather "directed to the broad concept of monitoring audit log data." (quotation omitted)). Similarly, in Intellectual Ventures, the Federal Circuit found no inventive concept where the claimed method of filtering emails to address computer viruses and spam did not "improve the functioning of the computer itself," but rather "use[d] generic computers to perform generic computer functions." 838 F.3d at 1315. And in Electric Power, the court found that claims which did not "require a new source or type of information, or new techniques for

[3] As InfoBionic points out, the patent itself states that a variety of implementations of conventional computer software can be used to implement these functions. See '207 Patent 16 col. 11:5-9 [#25-1] ("Various implementations of the systems and techniques described here can be realized in digital electronic circuitry, integrated circuitry, specially designed ASICs (application specific integrated circuits), computer hardware, firmware, software, and/or combinations thereof.").

analyzing it" or "invoke any assertedly inventive programming" did not "require an arguably inventive set of components or methods, such as measurement devices or techniques[] that would generate new data." 830 F.3d at 1355. The Electric Power court emphasized that "[m]erely requiring the selection and manipulation of information . . . by itself does not transform the otherwise-abstract processes of information collection and analysis." Id. (citations omitted).

The court finds InfoBionics's argument to be correct. Claim 1, the only claim quoted in the Complaint [#25], recites:

> A device, compromising:
>
> a beat detector to identify a beat-to-beat timing of cardiac activity;
>
> a ventricular beat detector to identify ventricular beats[4] in the cardiac activity;
>
> variability determination logic to determine a variability in the beat-to-beat timing of a collection of beats;
>
> relevance determination logic to identify a relevance of the variability in the beat-to-beat timing to at least one of the atrial fibrillation and atrial flutter; and
>
> an event generator to 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 beat detector.

'207 Patent 16 col. 12:12-27 [#25-1]. The other asserted claims read as follows:

> 2. The device of claim 1, wherein the relevance determination logic is to accommodate variability in the beat-to-beat timing caused by ventricular beats by weighting ventricular beats as being negatively indicative of the one of atrial fibrillation and atrial flutter.
>
> 3. The device of claim 1, wherein the variability determination logic is to compare times between R-waves in three successive QRS complexes to determine the variability in the beat-to-beat timing.
>
> . . .
>
> 7. The device of claim 1, wherein the event generator is to generate an event by performing operations comprising: collecting data associated with the collection

[4] For purposes of this motion to dismiss, the court adopts Plaintiffs' construction of the term "ventricular beats" to mean "premature ventricular beats that are irregular beats that interrupt the normal heart rhythm." Pls.' Opp'n 6 n.2 [#40].

> of beats; and transmitting the data associated with the collection of beats to a remote receiver.
>
> . . .
>
> 10. The device of claim 1, wherein the relevance determination logic comprises logic to identify the relevance of the variability using a non-linear function of a beat-to-beat interval.
>
> 11. The device of claim 1, wherein the beat detector comprises a QRS detector.
>
> 12. The device of claim 1, further comprising a sensor that includes two or more body surface electrodes subject to one or more potential differences related to cardiac activity.
>
> . . .
>
> 22. The article of claim 20[5], determining the relevance comprises: identifying a beat of the collection as a ventricular beat, and weighting the beat as being negatively indicative of the one of atrial fibrillation and atrial flutter.

Compl. ¶ 20 [#25]; '207 Patent 16 col. 12:28-17, col. 14:43 [#25-1].

Nothing in these claims imposes a meaningful limit on the abstract idea of identifying AF by looking at the variability in time between heartbeats and taking into account ventricular beats. Plaintiffs argue that the invention uses "specifically programmed rules, termed 'determination logic'" to improve the cardiac monitoring, Pls.' Opp'n 14 [#40],[6] and that "claims 2, 3, 10, and

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[5] Claim 20 asserts:

> An article comprising one or more machine-readable media storing instructions operable to cause one or more machines to perform operations, the operations comprising: determining a beat-to-beat variability in cardiac electrical activity; determining a relevance of the variability over a collection of beats to one of atrial fibrillation and atrial flutter using a non-linear function of a beat-to-beat interval; and identifying one of an atrial fibrillation event and an atrial flutter event based on the determined relevance, the event being a period in time when the information content of the cardiac electrical activity is of increased relevance to the one of atrial fibrillation and atrial flutter."

'207 Patent 17 [#25-1].

[6] See also id. at 6 (the '207 patent "uses determination logic to identify AF events"); id. at 16 (the '207 patent achieves solutions "through the claimed beat detectors and the event generators' application of the determination logic"); id. at 17 (the claims focus on a challenge to computer monitoring "by using determination logic to calculate beat-to-beat variability"); id. ("the limitations of the '207 patent . . . require[e] the rules to be applied in a specific way"); id. at 18 ("[t]he specificity of the decision logic in taking into account variability in the beat-to-beat

22 (which is dependent upon claim 20) recite additional limitations to the determination logic described in the patent specification." Id. at 19. But, Plaintiffs do not identify what aspect of "the determination logic described in the patent specification" makes either the patent as a whole, or the specific claims asserted, patent-eligible.

The "determination logic" cited by Plaintiffs is not a limitation set forth in the '207 patent. Instead, the "determination logic" is undefined and unspecified. Claim 1 broadly claims the use of components with "variability determination logic to determine a variability in the beat-to-beat timing of a collection of beats," without specifying any limitations to that logic. '207 Patent 16 col. 12:17-18 [#25-1]. In claim 2, the determination logic "is to accommodate variability in the beat-to-beat timing caused by ventricular beats by weighting ventricular beats as being negatively indicative of the one of atrial fibrillation and atrial flutter." Id. at col. 12:29-32. In claim 3 "the variability determination logic is to compare times between R-waves in three successive QRS complexes to determine the variability in the beat-to-beat timing." Id. at col. 12:33-36. And, in claim 10 "the relevance determination logic comprises logic to identify the relevance of the variability using a non-linear function of a beat-to-beat interval." Id. at 17 col. 13:5-8. The innovation of the '207 patent may be to use computer equipment and logic to monitor the variability of beats, but nothing in these claims places any limitation on that abstract idea.

Plaintiffs argue that the claims recite the following additional inventive limitations:

> [C]laims 2 and 22 specifically require that the determination logic weight premature ventricular beats 'as being negatively indicative,' claim 3 specifically

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timing . . . provides . . . limitation"); id. at 20 ("the beat detectors and event generator of the '207 patent work together with the determination logic"); id. ("specific programming is required to perform the claims' function"); id. at 21 ("[i]t is the combination of . . . elements, together with the determination logic, that solves the prior art cardiac monitoring problem of incorrectly identifying AF events").

> requires analysis of 'three successive QRS complexes,' and claims 10 and 20 (not independently asserted) limit the determination logic to a non-linear function. Moreover, claim 7 provides for the additional advantage and monitoring system flexibility of the transmission of data associated with a collection of beats to a remote receiver – similar to the claims already found eligible by the Court in the Related Action.

Pls.' Opp'n 23 [#40] (citing CardioNet, LLC v. InfoBionic, Inc., 2017 WL 1788650 (D. Mass. May 4, 2017) (order allowing in part and denying in part renewed motion for judgment on the pleadings)).

But, as InfoBionic responds, claims 2, 3, 10, and 22 "provide additional information relating to the variability or determination logic, but provide no meaningful details on *how* to implement it, and thus add nothing inventive. At most, these claims add generic calculations that humans can perform." Def.'s Mem. 24 [#37]. And "the addition of a mathematical equation that simply changes the data into other forms of data cannot save it." RecogniCorp, LLC v. Nintendo Co., Ltd., 855 F.3d 1322, 1328 (Fed. Cir. 2017) (holding that "the presence of a mathematical formula" did not add an inventive concept to transform "the abstract idea of encoding and decoding into patent-eligible subject matter").

Similarly, claim 7 simply provides that "the event generator collects and transmits data to a remote receiver," but "collecting, transmitting, and storing data is generic and conventional," Def.'s Mem. 20 [#37], and therefore does not add an inventive limitation. See In re TLI Commc'ns LLC Patent Litig., 823 F.3d at 613.[7]

[7] Claims 11 and 12 do not even include the reference to "determination logic," and instead simply limit the source and type of data collected to a QRS detector and body surface sensors, both of which are conventional technology. See In re TLI Commc'ns LLC Patent Litig., 823 F.3d at 613 (holding that, at step two of the Alice inquiry, "mere recitation of concrete, tangible components is insufficient to confer patent eligibility to an otherwise abstract idea. Rather, the components must involve more than performance of 'well-understood, routine, conventional activit[ies]' previously known to the industry." (quoting Alice, 134 S. Ct. at 2359)).

In sum, unlike in Bascom, Andocs, or the previous CardioNet litigation, the asserted claims of the '207 patent are broadly described, with no meaningful limitation, so as to preempt other technological systems directed to the abstract idea of monitoring and analyzing ventricular beats to identify AF events.

Plaintiffs argues finally that under the Federal Circuit's decision in Berkheimer, 881 F.3d 1360, the second step of Alice involves factual inquiries, and may overlap with other fact-intensive inquiries such as novelty under § 102. Pls.' Not. Supp. Authorities 2 [#43]. In Berkheimer, the court found on review of a summary judgment record that there were disputed facts to support the nonmovant's claim that the asserted data processing system claims may be directed to an improvement in the computer technology itself. See 881 F.3d at 1360. Here, there are no disputes of fact as the court accepts the Plaintiffs' non-conclusory factual assertions in the complaint and the patent as true. On the facts as alleged, and the patent terms as construed by Plaintiffs, Plaintiffs' asserted claims are not directed to any improvement in the computer technology itself, but rather seek to improve cardiac monitoring instead through the abstract idea of measuring the variability of heartbeats.

Conclusion

For all of the above reasons, the '207 patent is directed to an abstract idea and the asserted claims do not add an inventive elements. Accordingly, Defendant's Motion to Dismiss [#36] is ALLOWED.

IT IS SO ORDERED.

Date: October 16, 2018

/s/ Indira Talwani
United States District Judge