

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
03 March 2022 (03.03.2022)



(10) International Publication Number
WO 2022/047228 A1

- (51) International Patent Classification:
G16H 50/30 (2018.01)
- (21) International Application Number:
PCT/US2021/048053
- (22) International Filing Date:
27 August 2021 (27.08.2021)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
63/071,982 28 August 2020 (28.08.2020) US
63/071,989 28 August 2020 (28.08.2020) US
63/090,610 12 October 2020 (12.10.2020) US
63/181,913 29 April 2021 (29.04.2021) US
- (71) Applicant: **EMERJA CORPORATION** [US/US]; 18114 Bancroft Avenue, Monte Sereno, California 95030 (US).
- (72) Inventors: **MILLER, Guy**; 18114 Bancroft Avenue, Monte Sereno, California 95030 (US). **HANSEN, Daniel**; 18114 Bancroft Avenue, Monte Sereno, California 95030 (US). **COLVIN, Skip**; 18114 Bancroft Avenue, Monte Sereno, California 95030 (US).
- (74) Agent: **DELANEY, Karoline, A.**; KNOBBE MARTENS, 2040 Main Street, 14th Floor, Irvine, California 92614 (US).
- (81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, IT, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD,

(54) Title: SYSTEMS AND METHODS FOR MEASURING, LEARNING, AND USING EMERGENT PROPERTIES OF COMPLEX ADAPTIVE SYSTEMS

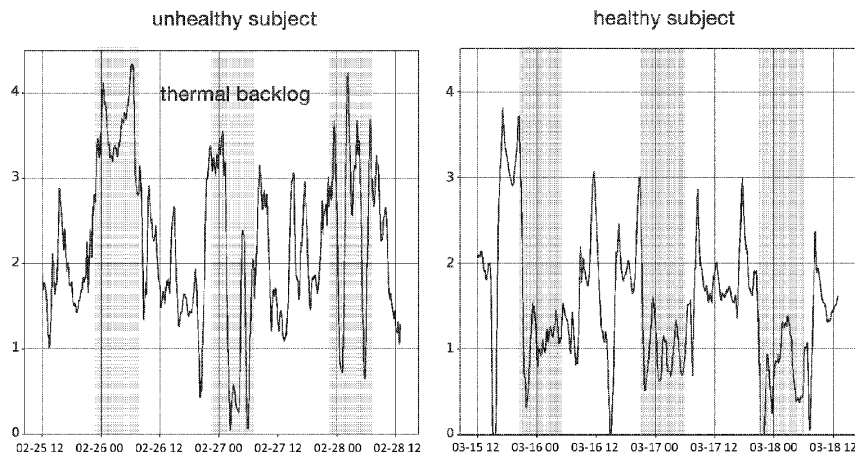


FIG. 21

(57) Abstract: Systems are described for measuring, recording, transmitting, accessing, and using an array of physical and physiological measurements that quantify states of complex adaptive systems, such as biological systems, more particularly the state is reflected in a metric designated health capacity. These measurements may be used, for example, for the pre-symptomatic detection and interception of disease states in a biological system. In one aspect, the system comprises a wearable device configured to measure, substantially simultaneously, an array of water-associated metrics, preferably at multiple loci on the biological system and as a function of time. The systems may further comprise using a scalable technology platform to identify, from the array of data across multiple systems, preferably compared to a training data set, utilizing machine readable instructions, to determine and/or predict health states, including the health capacity, of the biological system and to generate recommendations, including modification or nutrition, sleep, physical or

[Continued on next page]

ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO,
NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW,
SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN,
TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

- *with international search report (Art. 21(3))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*