

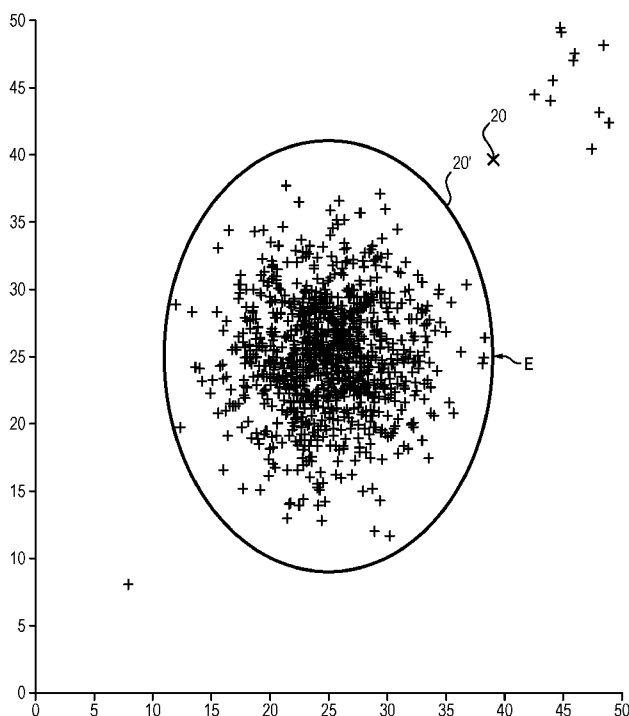


- (51) International Patent Classification:
G05B 23/02 (2006.01)
- (21) International Application Number:
PCT/EP2013/053798
- (22) International Filing Date:
26 February 2013 (26.02.2013)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
1251870 29 February 2012 (29.02.2012) FR
61/617,601 29 March 2012 (29.03.2012) US
- (71) Applicants: SAGEM DEFENSE SECURITE [FR/FR];
Le Ponant de Paris, 27 rue Leblanc, F-75015 Paris (FR).
UNIVERSITE DE TECHNOLOGIE DE TROYES
[FR/FR]; 12 Rue Marie Curie, F-10000 Troyes (FR).
- (72) Inventor: CHRYSANTHOS, Nicolas; Sagem Defense Securite, Le Ponant de Paris, 27 rue Leblanc, F-75015 Paris (FR).
- (74) Agent: REGIMBEAU; 20, rue de Chazelles, F-75847 Paris Cedex 17 (FR).
- (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, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, 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, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
- (84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH,

[Continued on next page]

(54) Title: METHOD OF ANALYSING FLIGHT DATA

FIG. 2



(57) Abstract: The invention relates to a method of analysing flight data recorded during N flights of at least one aircraft, by means of a flight data recorder of an aircraft, the data being grouped together by flight i in a signature vector of the flight X_i of size d , the components of which correspond to data recorded during said flight i of the aircraft, a flight i being thus defined by the signature vector X_i , the method comprising the following steps: Gaussian kernel entropy component analysis of the flight signatures X_i to obtain a zone of normal flights and classifying the flight signatures X_i with respect to their distance to said zone; determining, for each flight i , an abnormality score z_i defined by the distance of a flight signature X_i with respect to the zone of normal flights; detecting, as a function of the abnormality score z_i , at least one abnormal flight.



GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, 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, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— *of inventorship (Rule 4.17(iv))*

Published:

— *with international search report (Art. 21(3))*