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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
02 October 2025 (02.10.2025)

WIPO | PCT

(10) International Publication Number
WO 2025/207035 A1

(51) International Patent Classification:
G01S 7/292 (2006.01) *G01S 7/41* (2006.01)
G01S 13/88 (2006.01) *G01S 13/02* (2006.01)

(21) International Application Number:
PCT/SG2025/050228

(22) International Filing Date:
28 March 2025 (28.03.2025)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10202400927U 28 March 2024 (28.03.2024) SG

(71) Applicant: **AGENCY FOR SCIENCE, TECHNOLOGY AND RESEARCH** [SG/SG]; 1 Fusionopolis Way, #20-10 Connexis North, Singapore 138632 (SG).

(72) Inventors: **ZHANG, Xiaojuan**; c/o PKM, Institute for Infocomm Research, 1 Fusionopolis Way, #21-01 Connexis South, Singapore 138632 (SG). **ZENG, Yonghong**; c/o PKM, Institute for Infocomm Research, 1 Fusionopolis Way, #21-01 Connexis South, Singapore 138632 (SG). **SUN, Sumei**; c/o PKM, Institute for Infocomm Research, 1 Fusionopolis Way, #21-01 Connexis South, Singapore 138632 (SG).

(74) Agent: **DAVIES COLLISON CAVE ASIA PTE. LTD.**; 10 Collyer Quay, #07-01 Ocean Financial Centre, Singapore 049315 (SG).

(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, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, MG, MK, MN, MU, 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, UY, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, 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, ME, 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).

(54) Title: MULTI-TARGET RADAR SENSING

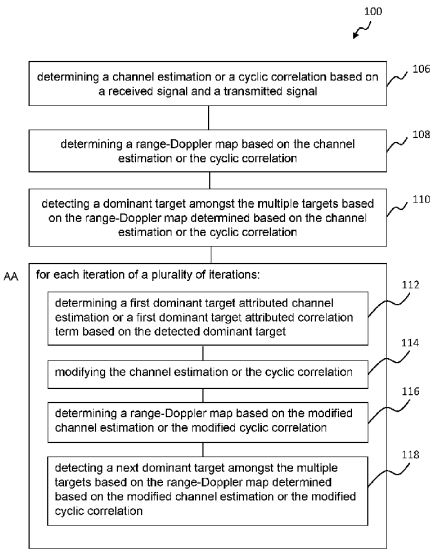


FIG. 1

(57) **Abstract:** A method of radar sensing for detecting multiple targets is provided. The method includes: determining a channel estimation or a cyclic correlation based on a received signal and a transmitted signal, whereby the received signal is reflected from multiple targets from the transmitted signal and the cyclic correlation is determined based on a correlation intermediate term; determining a range-Doppler map based on the channel estimation or the cyclic correlation; and detecting a dominant target amongst the multiple targets based on the range-Doppler map determined based on the channel estimation or the cyclic correlation. In particular, the method further includes, for each iteration of a plurality of iterations: determining a first dominant target attributed channel estimation or a first dominant target attributed correlation intermediate term based on the detected dominant target; modifying the channel estimation or the cyclic correlation including offsetting the first dominant target attributed channel estimation from the channel estimation or offsetting the first dominant target attributed correlation intermediate term from the correlation intermediate term; determining a range-Doppler map based on the modified channel estimation or the modified cyclic correlation; and detecting a next dominant target amongst the multiple targets based on the range-Doppler map determined based on the modified channel estimation or the modified cyclic correlation. There is also provided a corresponding system for radar sensing and a corresponding radar for detecting multiple targets.

WO 2025/207035 A1

[Continued on next page]

Declarations under Rule 4.17:
— *of inventorship (Rule 4.17(iv))*

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