

(51) International Patent Classification:
B63H 1/10 (2006.01)(21) International Application Number:
PCT/EP2020/066194(22) International Filing Date:
11 June 2020 (11.06.2020)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant: **ABB OY** [FI/FI]; Strömbergintie 1, 00380 Helsinki (FI).

(72) Inventors: **LIU, Bin**; Regnbågegatan 16, 72350 Västerås (SE). **PELJO, Veli-Pekka**; c/o ABB Oy, Merenkulkijankatu 1, 00980 Helsinki (FI). **FRANSSON, Peter**; Plåtslagargatan 4, 72335 Västerås (SE). **TRANSGARD, Arne**; Frejagatan 15a, 72335 Västerås (SE). **Ji, Wei**; Sjöbjörnsvägen 15c, 11767 Stockholm (SE). **GARCIA-GABIN, Winston**; Gustav III:s boulevard 10, 16972 Solna (SE). **MISHCHENKO, Kateryna**; Rågetsvägen 3, 72242 Västerås (SE). **KIVELÄ, Jari**; c/o ABB Oy, Komentosilta 1, 00980 Helsinki (FI). **KARILA, Kai**; c/o ABB Oy, Komentosilta 1, 00980 Helsinki (FI). **KIVIOJA, Matti**; c/o ABB Oy, Komentosilta 1, 00980 Helsinki (FI).

(74) Agent: **KOLSTER OY AB**; (Salmisaarenaukio 1), P.O. Box 204, 00181 Helsinki (FI).

(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, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, 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, 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).

(54) Title: APPARATUS, METHOD AND COMPUTER PROGRAM FOR CONTROLLING PROPULSION OF MARINE VESSEL

(57) Abstract: Apparatus, method and computer program for controlling propulsion of marine vessel. The propulsion is implemented by a foil wheel propulsion system. The method includes: receiving (602) a wheel operation status from a wheel drive; receiving (604) a plurality of foil operation statuses from a plurality of foil drives; receiving (606) a command from a vessel control system; generating (608) wheel control data for the wheel drive to control a foil pitch function of the foil wheel propulsion system based on the command in view of the wheel operation status; and generating (610) foil control data for the plurality of the foil drives to further control the foil pitch function of the foil wheel propulsion system based on the command in view of the wheel operation status and the plurality of foil operation statuses, wherein a reference torque of the foil control data for each foil drive is generated (612) using a foil feedforward model.

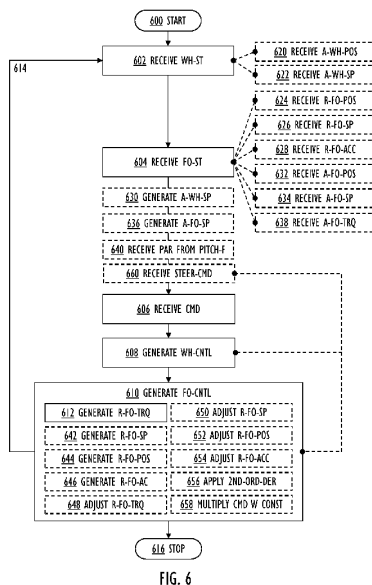


FIG. 6

Published:

- with international search report (Art. 21(3))
- in black and white; the international application as filed contained color or greyscale and is available for download from PATENTSCOPE