



(51) International Patent Classification:
G06N 3/02 (2006.01) G06T 7/00 (2017.01)
G06V 10/82 (2022.01)

(21) International Application Number:
PCT/SG2024/050486

(22) International Filing Date:
31 July 2024 (31.07.2024)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10202302183R 31 July 2023 (31.07.2023) SG

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(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, 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).

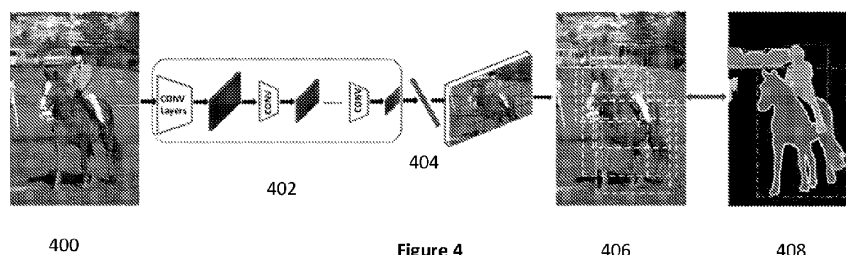
Declarations under Rule 4.17:

— of inventorship (Rule 4.17(iv))

Published:

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

(54) Title: OBJECT DETECTION



(57) Abstract: An object detection network training method includes receiving images showing an object and comprising a ground truth bounding box, and ground truth mask, for the object. Image features are extracted and bounding boxes are predicted for the object. A combined loss is calculated for the bounding boxes, comprising a bounding box regression loss between the one or more predicted bounding boxes and the ground truth bounding box for the object in the image, and an instance coverage loss of the one or more predicted bounding boxes relative to ground truth mask. A bounding box regression network is updated using the combined loss, and the process repeats until convergence. The object detection network can then determine a final bounding box based on the boxes predicted by the trained regression network.