



(51) International Patent Classification:

G06N 3/0455 (2023.01) G06N 3/096 (2023.01)
G06N 3/0495 (2023.01)

(21) International Application Number:

PCT/EP2023/077711

(22) International Filing Date:

06 October 2023 (06.10.2023)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

22306599.6 21 October 2022 (21.10.2022) EP

(71) Applicant: **INTERDIGITAL CE PATENT HOLDINGS, SAS** [FR/FR]; 3 rue du Colonel Moll, 75017 Paris (FR).(72) Inventors: **SCHNITZLER, Francois**; c/o InterDigital R&D France, Immeuble Zen 2, 845A Avenue des Champs Blancs, 35510 CESSON-SEVIGNE (FR). **BALCILAR, Muhammet**; c/o InterDigital R&D France, Immeuble Zen 2, 845A Avenue des Champs Blancs, 35510 CESSON-SEVIGNE (FR). **LAMBERT, Anne**; c/o InterDigital R&D France, Immeuble Zen 2, 845A Avenue des Champs Blancs, 35510 CESSON-SEVIGNE (FR). **JOURAIRI, Oussama**;

c/o InterDigital R&D France, Immeuble Zen 2, 845A Avenue des Champs Blancs, 35510 CESSON-SEVIGNE (FR).

(74) Agent: **INTERDIGITAL**; Immeuble Zen 2, 845A Avenue des Champs Blancs, 35510 CESSON-SEVIGNE (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, 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,

(54) Title: METHOD AND DEVICE FOR FINE-TUNING A SELECTED SET OF PARAMETERS IN A DEEP CODING SYSTEM

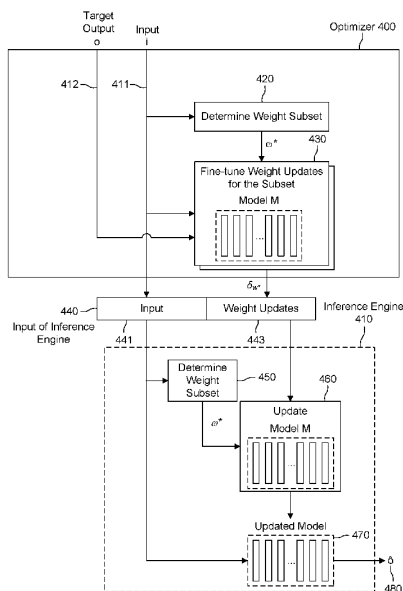


Figure 4

(57) Abstract: A deep neural network-based coding system for images determines update parameters of a deep neural network model for decoding an image. These parameters are determined by an encoder and provided to a decoder to update the model of the decoder before decoding the image. This provides structural sparsity by fine-tuning only some parameters of the neural decoder. The update is done on a set of parameters selected based on the embedding representative of the coded image so that there is no need to transmit information related to the selection of the parameters to be updated. A more generic optimizer/inference engine is also described as well as an application to sound upsampling.

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))*