

(12) 按照专利合作条约所公布的国际申请

(19) 世界知识产权组织
国际局



(10) 国际公布号
WO 2023/040745 A1

(43) 国际公布日
2023 年 3 月 23 日 (23.03.2023)

- (51) 国际专利分类号:
H04N 19/136 (2014.01) *G06N 3/02* (2006.01)
H04N 19/593 (2014.01)
- (21) 国际申请号: PCT/CN2022/117819
- (22) 国际申请日: 2022 年 9 月 8 日 (08.09.2022)
- (25) 申请语言: 中文
- (26) 公布语言: 中文
- (30) 优先权:
202111101920.9 2021 年 9 月 18 日 (18.09.2021) CN
202210300566.0 2022 年 3 月 25 日 (25.03.2022) CN

(71) 申请人: 华为技术有限公司 (HUAWEI TECHNOLOGIES CO., LTD.) [CN/CN]; 中国广东省深圳市龙岗区坂田华为总部办公楼, Guangdong 518129 (CN)。

(72) 发明人: 师一博 (SHI, Yibo); 中国广东省深圳市龙岗区坂田华为总部办公楼, Guangdong 518129 (CN)。 葛运英 (GE, Yunying); 中国广东省深圳市龙岗区坂田华为总部办公楼, Guangdong

518129 (CN)。 王晶 (WANG, Jing); 中国广东省深圳市龙岗区坂田华为总部办公楼, Guangdong 518129 (CN)。 毛珏 (MAO, Jue); 中国广东省深圳市龙岗区坂田华为总部办公楼, Guangdong 518129 (CN)。 赵寅 (ZHAO, Yin); 中国广东省深圳市龙岗区坂田华为总部办公楼, Guangdong 518129 (CN)。 杨海涛 (YANG, Haitao); 中国广东省深圳市龙岗区坂田华为总部办公楼, Guangdong 518129 (CN)。

(74) 代理人: 广州三环专利商标代理有限公司 (SCIHEAD IP LAW FIRM); 中国广东省广州市越秀区先烈中路 80 号汇华商贸大厦 1508 室, Guangdong 510070 (CN)。

(81) 指定国 (除另有指明, 要求每一种可提供的国家保护): 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, ME, MG, MK,

(54) Title: FEATURE MAP ENCODING METHOD AND APPARATUS AND FEATURE MAP DECODING METHOD AND APPARATUS

(54) 发明名称: 特征图编解码方法和装置

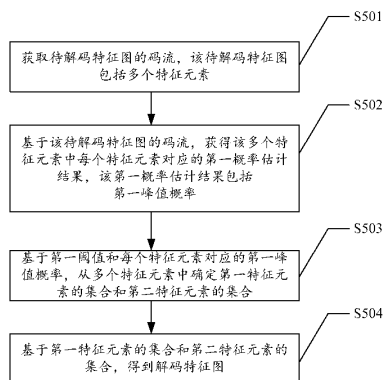


图 5

- S501 Obtain a code stream of a feature map to be decoded, the feature map to be decoded comprising multiple feature elements
- S502 On the basis of the code stream of the feature map to be decoded, obtain a first probability estimation result corresponding to each of the multiple feature elements, the first probability estimation result comprising a first peak probability
- S503 On the basis of a first threshold and the first peak probability corresponding to each feature element, determine a set of first feature elements and a set of second feature elements from the multiple feature elements
- S504 On the basis of the set of first feature elements and the set of second feature elements, obtain a decoded feature map

(57) Abstract: The present application relates to the technical field of data encoding and decoding based on artificial intelligence (AI), and in particular to the technical field of data encoding and decoding based on a neural network. Provided are a feature map encoding method and apparatus and a feature map decoding method and apparatus. The feature map decoding method comprises: obtaining a code stream of a feature map to be decoded, the feature map to be decoded comprising multiple feature elements; on the basis of the code stream, obtaining a first probability estimation result corresponding to each feature element, the first probability estimation result comprising a first peak probability; on the basis of a first threshold and the first peak probability corresponding to each feature element, determining a set of first feature elements and a set of second feature elements from the multiple feature elements; and on the basis of the set of first feature elements and the set of second feature elements, obtaining a decoded feature map. A decoding mode for each feature element is determined by means of the probability estimation result and the first peak probability corresponding to each feature element, so that the encoding and decoding performance is improved while reducing the complexity of encoding and decoding.

[见续页]

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) 指定国 (除另有指明, 要求每一种可提供的地区保护): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), 欧亚 (AM, AZ, BY, KG, KZ, RU, TJ, TM), 欧洲 (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)。

本国际公布:

— 包括国际检索报告 (条约第21条(3))。

(57) 摘要: 本申请提供了特征图编解码方法和装置。涉及基于人工智能(AI)的数据编解码技术领域, 具体设计基于神经网络的数据编解码技术领域。其中特征图解码方法包括: 获取待解码特征图的码流, 该待解码特征图包括多个特征元素; 基于该码流, 获得每个特征元素对应的第一概率估计结果, 该第一概率估计结果包括第一峰值概率; 基于第一阈值和每个特征元素对应的第一峰值概率, 从多个特征元素中确定第一特征元素的集合和第二特征元素的集合; 基于该第一特征元素的集合和第二特征元素的集合, 得到该解码特征图。通过概率估计结果和每个特征元素对应的第一峰值概率确定每个特征元素的解码方式, 能在降低编解码复杂度的同时提升编解码性能。