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Row 1: 14/702,903, 05/04/2015, Mangesh Devidas Sadafale, TI-71049A, 1017
Row 2: 23494, 7590, 06/15/2020, TEXAS INSTRUMENTS INCORPORATED, P O BOX 655474, MS 3999, DALLAS, TX 75265, EXAMINER LI, TRACY Y, ART UNIT 2487, PAPER NUMBER, NOTIFICATION DATE 06/15/2020, DELIVERY MODE ELECTRONIC

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MANGESH DEVIDAS SADAFALÉ

Appeal 2018-008140
Application 14/702,903
Technology Center 2400

Before JEFFREY S. SMITH, IRVIN E. BRANCH, and
DAVID J. CUTITTA II, Administrative Patent Judges.

BRANCH, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE¹

Pursuant to 35 U.S.C. § 134(a), Appellant² appeals from the Examiner's decision to reject claims 1–4, 7–13, and 16–20. Appeal Br. 3 (“The only ground of rejection for review is the rejection of claims 1, 10 and

¹ We refer to the Specification, filed May 4, 2015 (“Spec.”); Final Office Action, mailed March 31, 2017 (“Final Act.”); Appeal Brief, filed March 30, 2018 (“Appeal Br.”); Examiner's Answer, mailed June 8, 2018 (“Ans.”); and Reply Brief, filed August 9, 2018 (“Reply Br.”).

² We use the word Appellant to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as Texas Instruments Incorporated of Dallas, Texas, United States of America. Appeal Br. 2.

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17 under 35 U.S.C. § 103”).³ Claims 1–20 are pending, of which claims 5, 6, 14, and 15 have been indicated to recite allowable subject matter. *See* Final Act. 1. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

CLAIMED SUBJECT MATTER

According to Appellant, the claims relate to “filtering video data.” Spec. ¶ 2. Claim 1, reproduced below with disputed limitations emphasized in *italics*, is illustrative of the claimed subject matter:

1. A system for reducing blocking artifacts, the system comprising one or more processors:
 - a deblocking module executing on the one or more processors, the deblocking module comprising a luma deblocking filter and a chroma deblocking filter configured to filter an edge between adjacent blocks associated with video data, wherein a block of the adjacent blocks corresponds to one of a prediction block and a transform block; and
 - a processing module executing on the one or more processors and communicatively associated with the deblocking module, *the processing module operable to configure at least one filter coefficient corresponding to the chroma deblocking filter based on one or more filter coefficients corresponding to the luma deblocking filter*, and the processing module being configured to cause the chroma deblocking filter to filter the edge based on the at least one filter coefficient.

³ Appellant appeals only the rejection of claims 1, 10, and 17. We summarily affirm the rejections of the unappealed claims.

REFERENCES

The prior art relied upon by the Examiner is:

Name	Reference	Date
Kanazawa	US 2006/0078055 A1	Apr. 13, 2006
Sun	US 2006/0126962 A1	June 15, 2006
He	US 2008/0069247 A1	Mar. 20, 2008
Fu	US 2011/0274158 A1	Nov. 10, 2011

REJECTIONS

Claims 1–4, 8–13, and 16–20 stand rejected under pre–AIA 35 U.S.C. § 103(a) as unpatentable over the combination of He, Sun, and Fu. Final Act. 3–6.

Claim 7 stands rejected under pre–AIA 35 U.S.C. § 103(a) as unpatentable over the combination of He, Sun, Fu, and Kanazawa. Final Act. 6–7.

ANALYSIS

We have reviewed the Examiner’s rejections in light of Appellant’s arguments. We have considered in this Decision only those arguments Appellant actually raised in the Briefs. Any other arguments Appellant could have made but chose not to make in the Briefs are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(iv).

Regarding claim 1, Appellant argues as follows:

the Examiner acknowledged that He . . . and Sun . . . fail to disclose ‘the processing module operable to configure at least one filter coefficient corresponding to the chroma deblocking filter based on one or more filter coefficients corresponding to the luma deblocking filter,’ as recited in pending claim 1, and turned to Fu . . . in an attempt to cure the deficiency.

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Appeal Br. 6. Appellant then argues that Fu “fails to cure the shortcomings of He and Sun.” *Id.*

Appellant’s argument is unpersuasive of error.

As an initial matter, Appellant does not cite—and we cannot find—the Examiner’s acknowledgment that “He . . . and Sun . . . fail to disclose ‘the processing module operable to configure at least one filter coefficient corresponding to the chroma deblocking filter based on one or more filter coefficients corresponding to the luma deblocking filter.’” Rather, with respect to the argued limitation, the Examiner’s rejection is based on the combined teachings of He, Sun, and Fu. Final Act. 3–5; *see, e.g., id.* at 3–4 (“He discloses a system for reducing blocking artifacts [including] a processing module . . . operable to configure at least one filter coefficient corresponding to the chroma deblocking filter (e.g.Fig.3; [0030] lines 14-17, wherein 309 & 311 is the chrome deblocking filters).” The Examiner concludes as follows:

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made having all three of the references of He, Sun and Fu before him/her, to modify the system for reducing blocking artifacts disclosed by He to include the block of the adjacent blocks corresponds to one of a prediction block of Sun and the chroma deblocking filter based on one or more filter coefficients corresponding to the luma deblocking filter of Fu, in order to provide a method of image block boundary filtering control, as taught by Sun (e.g.[0002]) and allow filtering process to be more flexible and/or localized processing can be provided, as taught by Fug (e.g.[0004]).

Id. at 5. Accordingly, contrary to Appellant’s contention, the Examiner’s rejection is not based on Fu alone. One cannot show nonobviousness by attacking references individually when the rejection is based on a combination of references. *In re Keller*, 642 F.2d 413, 425 (CCPA 1981).

Appellant argues specifically that the Examiner erred because the cited portion of Fu “is referring to adaptive loop filtering, and therefore does not correspond to a deblocking filter” and does not teach or suggest “the processing module operable to configure at least one filter coefficient corresponding to the chroma deblocking filter based on one or more filter coefficients corresponding to the luma deblocking filter.” Appeal Br. 6.

The Examiner responds by finding as follows:

Fu teaches an adaptive loop filtering (ALF) is used as in-loop processing in addition to deblocking, and it is often applied after deblocking of reconstructed video data; because of block-based processing in the coding system, coding artifacts at and near block boundaries are more noticeable, such artifacts may propagate from frame to frame, accordingly, in-loop filtering to ‘deblock’ the artifacts at and near block boundaries has been used in newer coding systems to alleviate the artifacts and improve picture quality. Therefore, an adaptive loop filtering (ALF) is a filter with deblocking function on edge or boundary, such ALF has been adapted and developed in those widely used video compression standards like H.264/AVC, High Efficiency Video Coding (HEVC).

Ans. 8 (citing Fu ¶¶ 3, 28). The Examiner further finds as follows:

Fu teaches, as luma and chroma components of video signal applying ALF, diamond-shaped filter or another shape filter would be used and the luma and chroma components share filter information that consist of filter coefficients, filter control region partitions, filter selections or filter ON/OFF, filter characteristics, or a combination of the above information, also the filter coefficients of the luma filter and chroma filter can be derived from each other. This means the filter coefficients of chroma filter is derived from or configured based on the filter coefficients of luma filter.

Id.

The Examiner further finds as follows:

Furthermore, He, Sun and Fu, each respectively teaches processing module. For instance, as stated in [0049], Fu teaches Digital Signal Processor (DSP) to perform the processing described herein, computer processor, a digital signal processor, a microprocessor, or field programmable gate array (FPGA), all these processors can be configured to perform particular tasks in video compression.

Id. at 8–9.

Appellant’s specific argument does not persuade us of error for the reasons stated by the Examiner (Ans. 7–9), which Appellant does not persuasively rebut. Specifically, Appellant does not address the Examiner’s finding that “an adaptive loop filtering (ALF) is a filter with deblocking function on edge or boundary, such ALF has been adapted and developed in those widely used video compression standards like H.264/AVC, High Efficiency Video Coding (HEVC).” Ans. 8; *see* Reply Br. 2. Appellant contends that the cited portions of Fu “refer to adaptive loop filtering (ALF) and deblocking as two separate and distinct steps” and “refer to adaptive loop filtering, and therefore do not correspond to a deblocking filter.” Reply Br. 2. These contentions do not persuade us of error because, even if Fu did not mention deblocking, the Examiner’s finding that “an adaptive loop filtering (ALF) is a filter with deblocking function on edge or boundary” (Ans. 8) is sufficient and unrebutted.

Accordingly, we sustain the Examiner’s rejection of claim 1. We also sustain the rejections of claims 10 and 17, which, although Appellant argues them separately (*see* Appeal Br. 6–7), Appellant does not argue the rejections with particularity.

DECISION SUMMARY

In sum:

Claims Rejected	35 U.S.C. §	References	Affirmed	Reversed
1-4, 8-13, 16-20	103	He, Sun, Fu	1-4, 8-13, 16-20	
7	103	He, Sun, and Fu, Kanazawa	7	
Overall Outcome:			1-4, 7-13, 16-20	

TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED