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UNITED STATES PATENT AND TRADEMARK OFFICE
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BEFORE THE PATENT TRIAL AND APPEAL BOARD
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Ex parte KEIICHI CHONO, HIROFUMI AOKI, and
YUZO SENDA
_____

Appeal 2019-000246
Application 14/114,941
Technology Center 2400
_____

Before JOSEPH L. DIXON, KRISTEN L. DROESCH, and
STEPHEN E. BELISLE, *Administrative Patent Judges*.

BELISLE, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant[1] appeals under 35 U.S.C. § 134(a) from a Final Rejection of
claims 1, 3, 5, 7, 9, and 10. Appeal Br. 1. We have jurisdiction under
35 U.S.C. § 6(b).

We AFFIRM.

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[1] Throughout this Decision, we use the word "Appellant" to refer to
"applicant" as defined in 37 C.F.R. § 1.42 (2017). Appellant identifies the
real party in interest as NEC Corporation. Appeal Br. 3.

STATEMENT OF THE CASE

The Claimed Invention

Appellant's invention generally relates to "a technique for coding a video quantization parameter for video coding that uses context-based adaptive binary arithmetic coding." Spec. ¶ 1.

Claim 1, reproduced below, is illustrative of the subject matter on appeal:

> 1. A video quantization parameter encoding method for encoding a quantization parameter for a video encoding process that is based on context-based adaptive binary arithmetic encoding, the video quantization parameter encoding method comprising:
>
> > generating a predicted quantization parameter from a past reconstructed quantization parameter;
> >
> > generating a delta quantization parameter from a quantization parameter and the predicted quantization parameter; and
> >
> > binary arithmetic encoding a first bin indicating whether or not the delta quantization parameter is significant, a sign bin indicating whether the delta quantization parameter is positive or negative, and other bins indicating an absolute value of the delta quantization parameter but not including information about sign of the delta quantization parameter, in the case where the delta quantization parameter is significant,
> >
> > wherein:
> >
> > > the binary arithmetic encoding is performed using no context for the sign bin, using a first context for the first bin and using a context different from the first context for the other bins; and
> > >
> > > the other bins are binary arithmetic encoded using the same context for a predetermined bin and bins subsequent to the predetermined bin.

Appeal Br. 19 (Claims Appendix).

The Applied References

The Examiner relies on the following references as evidence of

unpatentability of the claims on appeal:

Shimazaki	US 2006/0280371 A1	Dec. 14, 2006
Seki	US 2010/0238056 A1	Sept. 23, 2010
Zhou	US 2011/0274162 A1	Nov. 10, 2011
Budagavi	US 2012/0014454 A1	Jan. 19, 2012

Figure 16 of the subject application, U.S. Patent Appl. No. 14/114,941
("Applicant Admitted Prior Art" or "AAPA").

The Examiner's Rejection

The Examiner made the following rejection of the claims on appeal:

Claims 1, 3, 5, 7, 9, and 10 stand rejected under pre-AIA 35 U.S.C.

§ 103(a) as being unpatentable over Zhou, Shimazaki, Budagavi, AAPA

(Fig. 16), and Seki.

ANALYSIS[2]

Appellant disputes the Examiner's findings that the combination of

Zhou, Shimazaki, Budagavi, AAPA (Fig. 16), and Seki render obvious

claims 1, 3, 5, 7, 9, and 10. Appeal Br. 11–17. Appellant argues the

appealed claims as a group. *See* Appeal Br. 11–17. Thus, for purposes of

our analysis, we select independent claim 1 as the representative claim, and

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[2] Throughout this Decision, we have considered Appellant's Appeal Brief
filed April 23, 2018 ("Appeal Br."); the Examiner's Answer mailed
August 9, 2018 ("Ans."); the Final Office Action mailed August 3, 2017
("Final Act."); and Appellant's Specification filed October 31, 2013
("Spec."). Appellant did not file a reply brief to the Examiner's Answer.

any claim not argued separately will stand or fall with our analysis of the rejection of claim 1. *See* 37 C.F.R. § 41.37(c)(1)(iv).

Appellant submits three main arguments: (1) there is no motivation to combine Zhou and Shimazaki (Appeal Br. 12–14); (2) Seki does not provide a motivation to combine Zhou with Shimazaki, Budagavi, and AAPA (Appeal Br. 14–15); and (3) the cited references do not teach "the other bins are binary arithmetic encoded using the same context for a predetermined bin and bins subsequent to the predetermined bin," as recited in claim 1 (Appeal Br. 15–17). We find each of Appellant's arguments unpersuasive, as discussed below seriatim.

(1) Appellant argues "there is no motivation to combine *Zhou* with *Shimazaki*." Appeal Br. 12. In particular, Appellant argues "*Zhou* discloses a method for coding and decoding video data using coded quantization parameters," where "[a] quantization parameter corresponds to data to be intentionally adjusted for controlling a bit rate between an encoder and a decoder"; and "[i]n contrast, *Shimazaki* discloses encoding video data using motion vectors between pictures of a video signal and through binarization of coded motion vectors," where "[a] motion vector is determined by the image data itself . . . and is not intentionally adjusted." Appeal Br. 12–13 (emphasis omitted). According to Appellant, "[b]ecause the video encoding techniques in *Zhou* and *Shimazak[i]* are based on different parameters, i.e., 'quantization parameter' as opposed to 'motion vector', [a] person of ordinary skill in the art would have had no reason or motivation to adapt the video encoding of *Shimazaki* to that of *Zhou*." Appeal Br. 13. Appellant further contends that "during video encoding[,] the quantization parameter and motion vector are alternative options selected based on the trade-off

between their computation loads and encoding/decoding efficiencies," and that "the quantization parameter and motion vector *usually* are not used in video encoding simultaneously." Appeal Br. 13 (emphasis added).

The Examiner finds, contrary to Appellant's above contentions, "[b]oth *Zhou* and *Shimazaki* comprise the use of quantization parameters and motion vectors, which is a well-established practice in the H.264/AVC coding standard." Ans. 9 (record citations omitted). The Examiner further finds:

> When comparing *Zhou's* disclosure of an encoder in FIG. 3B with *Shimazaki's* disclosure of an encoder in FIG. 3, *the utilization of quantization parameters and motion vectors in both is readily apparent*. *Zhou* in FIG. 3B includes 'quantize 306' and 'motion estimation 320' that are both fed into 'entropy encoder 334' (note the MV for motion vector above the entropy encoder). *Shimazaki's* equivalent disclosure is FIG. 3, which discloses a 'quantization unit 22' and 'motion compensation unit 10' that are both fed into 'CABAC processing unit 16'.

Ans. 9 (emphasis added). The Examiner concludes "the disclosures of *Zhou* and *Shimazaki* are both consistent in the use of quantization parameters and motion vectors for encoding video data," and "[f]or this reason, a person having ordinary skill in the art would consider the references in a combination for the motivation set forth in the current rejection." Ans. 10.

We agree with and adopt as our own the Examiner's findings and conclusions in the Final Action (Final Act. 5–8) and Answer (Ans. 9–12) concerning motivation to combine Zhou with Shimazaki, including those identified above, and find Appellant's arguments here unpersuasive of Examiner error. In particular, we find Appellant's premise that the video encoding techniques in Zhou and Shimazaki are based on different parameters is belied by the references themselves, each of which discloses

coding video using *both* quantization parameters and motion vectors.
See, e.g., Zhou ¶¶ 4, 42, 54, Fig. 3B; Shimazaki ¶¶ 5–6, Fig. 3; Ans. 9–12.
Notably, Appellant did not reply to the Examiner's Answer on this issue.
Based on the foregoing, we find Appellant does not show persuasively that
the Examiner erred in finding a motivation or reason to combine Zhou with
Shimazaki.

(2) Appellant argues Seki does not provide a motivation to combine
Zhou with Shimazaki, Budagavi, and AAPA. Appeal Br. 14–15. Appellant
further argues "[t]he Examiner . . . mischaracterizes *Seki* in claiming that the
reference provides a motivation to combine *Zhou* with *Shimazaki*, *Budagavi*,
and *AAPA*," namely "'simplifying the system by not requiring to continually
change the context information, which would increase the processing
efficiency and furthermore the speed.'" Appeal Br. 14. Appellant contends,
"contrary to the Examiner's assertion, *Seki* merely states that 'processing
speed does not deteriorate significantly,' 'even when collectively processing
only consecutive binary symbols having the same value.'" Appeal Br. 14.
Appellant also contends "[p]reventing processing speed from *deteriorating*
significantly, as mentioned by *Seki*, is different from increasing processing
efficiency and speed." Appeal Br. 14. Appellant further contends that "the
Examiner does not explain how *Seki* teaches that the combination would
'simplify' the system," because according to Appellant, "the combination
would make the system more complicated (and inoperable) by attempting to
simultaneously use a quantization-parameter encoding technique and a
motion-vector encoding technique." Appeal Br. 14.

The Examiner explains that the "inclusion of *Seki* is for combining
AAPA with *Zhou*, *Shimazaki*, and *Budagavi*, not for combining *Zhou* with

Shimazaki, *Budagavi*, and *AAPA*" as argued by Appellant. Ans. 12;
see Final Act. 4 ("For evidencing that utilizing the same context index is
beneficial to a coder, the Examiner will additionally provide . . . [Seki],"
which "discloses . . . that it is possible to collectively process sequential bins
having the same context index for improving the speed."), 8–9. Similarly,
contrary to Appellant's argument (Appeal Br. 14–15), the Examiner does not
rely on Seki (but rather Zhou) to teach binarization of a delta quantization
parameter. *See* Ans. 14 ("*Zhou* is the primary reference and . . . is relied
upon for the disclosure of a delta quantization parameter."); Final Act. 6.
Also contrary to Appellant's argument (Appeal Br. 15), the Examiner does
not rely on AAPA (but rather the combination of Zhou, Shimazaki, and
Budagavi) to teach a first bin, a sign bin, and other bins, and relies on AAPA
to teach that "the context can be the same for 'other bins' and 'bins
subsequent.'" Ans. 14–15; Final Act. 8–9. We agree with the Examiner,
and find Appellant's above arguments unpersuasive because they are not
responsive to the rejection as articulated by the Examiner.

The Examiner also explains "[p]art of the solution to *Seki's* problem is
to increase a speed at which the entropy encoder can process[,] and the
'collectively processing only consecutive binary symbols' solution provides
less of a deterioration when compared to other options." Ans. 13. The
Examiner further explains "any computation has an associated time
consumption and it is understood from ¶ [0125] of *Seki's* disclosure that
their proposed solution provides an increase in processing speed when
compare[d] to other more detrimental solutions." Ans. 13 (citing Seki
¶ 125). We again agree with and adopt as our own the Examiner's findings
and conclusions noted above, and find Appellant's contrary arguments

unpersuasive of Examiner error. In particular, we find Appellant's argument concerning Seki's statement that "processing speed does not deteriorate significantly" improperly takes that statement out of context, as explained by the Examiner (Ans. 12–13). We also note that Appellant did not reply to the Examiner's Answer on the above issues.

Based on the foregoing, we find Appellant does not show persuasively that the Examiner erred in finding a motivation or reason to combine Zhou, Shimazaki, Budagavi, AAPA, and Seki.

(3) Appellant argues the cited references do not teach "the other bins are binary arithmetic encoded using the same context for a predetermined bin and bins subsequent to the predetermined bin," as recited in claim 1. Appeal Br. 15–17. According to Appellant, the accompanying text of Figure 16 in AAPA "merely discloses the context indices used for the first three bins," and "nowhere does *AAPA* expressly disclose that the context index used for binary arithmetic encoding of the forth bin, fifth bin, . . . , or any bins subsequent to the third bin is *fixed* to 3." Appeal Br. 16 (emphasis added).

The Examiner finds, and we agree, that the limitation, "the other bins are binary arithmetic encoded using the same context for a predetermined bin and bins subsequent to the predetermined bin," as recited in claim 1, does not require the context to be a *fixed* value. Ans. 16. Instead, the Examiner finds, and we again agree, that the subject limitation "encompasses any state in which the other bin and subsequent bins happen to have the 'same context.'" Ans. 16; *see In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004) (During prosecution, an application's claims are given their broadest reasonable scope consistent with the

specification.). As explained by the Examiner, "[t]his is consistent when interpreted in light of the specification, because both the prior-art and the specification are concerned with assigning context to bins as part of an entropy encoding process." Ans. 16. We agree with the Examiner that to interpret this claim limitation to necessitate *fixing* the bins to any single value would improperly import claim limitations from the Specification. *See* Ans. 16; *E-Pass Techs., Inc. v. 3Com Corp.*, 343 F.3d 1364, 1369 (Fed. Cir. 2003) (Claims must be interpreted "'in view of the specification' without unnecessarily importing limitations from the specification into the claims." (citing *Texas Digital Sys., Inc. v. Telegenix, Inc.*, 308 F.3d 1193, 1203–04 (Fed. Cir. 2002))).

The Examiner also finds "[t]he disclosure of *AAPA* in FIG. 16 indisputably discloses sequential bins set to value 3," "[t]here is no limitation present in the claim that requires any further narrowing of the scope of the claimed context for the 'other bins,'" and "[t]herefore, the prior-art of record discloses every limitation of claim 1." Ans. 16. Because Appellant argues AAPA does not disclose a "*fixed* context" value, which is not commensurate in scope with the claim limitation "*same* context," we find Appellant's arguments here unpersuasive of Examiner error. *See In re Self*, 671 F.2d 1344, 1348 (CCPA 1982) (limitations not appearing in the claims cannot be relied upon for patentability). We also again note that Appellant did not reply to the Examiner's Answer on the above issues.

Accordingly, we sustain the Examiner's rejection under pre-AIA 35 U.S.C. § 103(a) of independent claim 1. For similar reasons, we sustain the Examiner's rejection under pre-AIA 35 U.S.C. § 103(a) of independent

claims 3, 5, 7, 9, and 10, which were not argued separately. *See* 37 C.F.R. § 41.37(c)(1)(iv).

DECISION SUMMARY

Claims Rejected	35 U.S.C. §	Reference(s)/ Basis	Affirmed	Reversed
1, 3, 5, 7, 9, 10	103(a) (pre-AIA)	Zhou, Shimazaki, Budagavi, AAPA (Fig. 16), Seki	1, 3, 5, 7, 9, 10	

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv). *See* 37 C.F.R. § 41.50(f).

AFFIRMED