The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 17

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte CHRISTINE IRENE PODILCHUCK
and
SERGIO DANIEL SERVETTO

Appeal No. 2004-0042
Application 09/368,380

ON BRIEF

Before THOMAS, HAIRSTON, and RUGGIERO, Administrative Patent Judges.

THOMAS, Administrative Patent Judge.

DECISION ON APPEAL

Appellants have appealed to the Board from the examiner's final rejection of claims 1 through 8, 11 through 18 and 21 through 26. Because the examiner has indicated at pages 1

and 2 of the Answer that the rejection of dependent claims 7 and 17 has been withdrawn, claims 1 through 6, 8, 11 through 16, 18 and 21 through 26 remain for our consideration on appeal. The examiner has indicated that an objection remains outstanding as to dependent claims 7, 9, 10, 17, 19 and 20.

Representative claim 1 is reproduced below:

1. A method for encoding an image sequence, the method comprising the steps of:

generating an estimate of apparent motion within the image sequence utilizing a dense motion field of a portion of the image sequence, wherein the estimate comprises a plurality of motion vectors each corresponding to an element of the dense motion field, and is generated at least in part as a constrained function of a characterization of motion between elements of the dense motion field and elements of one or more other portions of the image sequence; and

utilizing the estimate to perform motion compensation on at least one of the images of the image sequence.

The following references are relied on by the examiner:

Tekalp et al. (Tekalp)	5,654,771	Aug. 5, 1997
O'Rourke	6,226,410	May 1, 2001 (filed June 30, 1997)

Claims 1 through 3 and 11 through 13 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Tekalp. Likewise, claims 21 through 26 stand rejected under 35 U.S.C. § 102(e) as

being anticipated by O'Rourke. Lastly, claims 4 through 6, 8, 14 through 16 and 18 stand rejected under 35 U.S.C. § 103. As evidence of obviousness, the examiner relies upon Tekalp in view of O'Rourke.

Rather than repeat the positions of the appellants and the examiner, reference is made to the Brief and Reply Brief for appellants' positions, and to the Answer for the examiner's positions.

OPINION

We sustain the separately stated rejections of claims 1 through 3, 11 through 13 and 21 through 26 for the reasons set forth by the examiner in the Answer as embellished upon here. On the other hand, we reverse the rejection of all claims under 35 U.S.C. § 103 generally for the reasons established by appellants in the Brief as to this rejection.

We are unpersuaded by appellants' arguments as to the first stated rejection of claims 1 through 3 and 11 through 13 as being anticipated by Tekalp as set forth at pages 4 through 7 of the Brief and pages 2 and 3 of the Reply Brief. The common

feature argued of corresponding method and apparatus independent claims 1 and 11 on appeal relates to the “wherein” clause of each claim. The examiner characterizes each of these as comprising two parts in the arguments presented in the Brief.

As to the features of this portion of the claims, we agree with the examiner’s reliance upon figures 2 and 2A of Tekalp along with corresponding column 2, lines 40-50; column 6, lines 45-65; and column 8, lines 1-17 and 25-47. To this we would add the initial part of the Abstract, the Summary of the Invention at column 3, lines 20-60 and the substance of column 19, lines 1-53. Essentially, corresponding discussions of figures 1-8 and 13 at columns 5-8 contain significant teachings apparently unappreciated by appellants.

It appears to us that the substance of appellants’ arguments in the Brief relative to this rejection is best summarized by a careful consideration of the examiner’s responsive arguments at page 8 of the Answer, which we reproduce here:

> First the Applicant asserts that Tekalp does not teach using a constrained function as claimed, see page 6 with respect to claims 1 and 11. The Examiner disagrees. A characterization of motion between elements of the dense motion field and elements of one

> or more other portion [sic] of the image sequence is indeed present in Tekalp. Elements of the dense motion field are areas within that field. In response to dense motion vectors, that is to say an area containing many vectors that are similar in direction and magnitude, Tekalp constrains the areas containing these vectors by grouping them together into separate sections. See column 8 lines 1-33. Therefore, each section or element of the dense motion field is characterized by the motion vectors constrained to that particular area. An area marked off by a polygon is a constrained mathematical function.

Appellants do not distinguish the claimed elements and portions of representative claims 1 and 11 on appeal versus the teachings relied upon by the examiner in Tekalp. There is nothing recited in these independent claims that distinguishes the claimed “constrained function” to limit the examiner’s consideration and to be synonymous with a constrained area as defined by the examiner in the Answer. It appears to us that the claimed “element” would be well appreciated by the artisan as claiming in general terminology a conventional pixel in the video arts and certainly a dense motion vector (DMV) in Tekalp relates to pixel relationships. The shape adaptive triangular patch mesh model not only relates to an area defined/constrained function to the extent claimed, but also the explanation thereof and the

portions that the examiner and we have identified relate fairly to a characterization of a relationship of motion between elements or pixels and elements in surrounding or other portions of a given image of a sequence of images.

Page 2 of the Reply Brief presents us with an incomplete recitation of what the examiner has recited at page 8 of the responsive arguments portion of the Answer that we reproduced in full earlier. Moreover, appellants correctly quote the examiner's observation at page 2 of the Reply Brief that Tekalp constrains the areas containing certain vectors by grouping them together into separate sections such that each section or element of the dense motion field is characterized by motion vectors constrained to that particular area, Answer page 8, but does not challenge the actual assertions made by the examiner. Rather, appellants go on to even presume for purposes of argument that if the proffered characterization of Tekalp is correct, the characterization clause of independent claims 1 and 11 on appeal is distinguished over the positions argued by the examiner. To further argue that the constrained function is not synonymous with a defined area of an image or is simply a function of the corresponding defined image area at the middle of page 2

of the Reply Brief appears to not come to grips with the merits of the examiner's position at page 8 of the Answer. It should be noted that the claim does not recite a constrained mathematical function at all nor is a mathematical function that constrains the amount or nature of the data recited in any manner.

This constrained function limitation of claims 1 and 11 appears to be a generic recitation of the more specific feature recited in dependent claim 4 relating to the Markov Random Field (MRF) which is detailed in independent claims 21 and 24 on appeal. Finally, the advantages of the invention argued at the bottom of page 2 of the Reply Brief are merely advantages relating to the disclosed invention and not any advantages that may be fairly attributed to the extremely broad recitation of the features in the questioned clause of claims 1 and 11 on appeal.

Since appellants have presented no arguments as to dependent claims 2, 3, 12 and 13 within this first stated rejection, the rejection of them likewise is affirmed.

Turning next to the rejection of independent claims 21 and 24 under the second stated rejection, we note that appellants

also do not argue the inclusive rejection of their respective dependent claims 22, 23, 25 and 26.

Appellants' remarks in the Brief and Reply Brief as to the second stated rejection, while correct, present an incomplete consideration of the teachings in O'Rourke. The artisan would well appreciate even from the study of the title of O'Rourke that the invention of his disclosure relates to image and video coding. There are clear teachings as we shall make clear to the reader that O'Rourke is concerned with separate coding and decoding functions. For example, the image decoder 200 in Figure 2A has a portion of its flow operation set forth in Figure 2B. The encoder filter 240 within the imaging coder 200 in Figure 2A is depicted in detail in Figure 3A, the functional flow of which is shown in Figure 3B. All of these four figures relate explicitly to an embodiment, the discussion of which occurs between columns 4 and 7 of O'Rourke relating to still image encoding.

The paragraph at column 3, lines 6-13, of this reference sets forth the proper tone in which the artisan and reader is to consider the teaching value of the encoding operation in the

noted figures in O'Rourke. There does appear to be teachings within the encoding operation that relate to decoding functions, but they only desire to decode a portion of the encoded sequence of images to derive a sequence of step sizes. The reader would not be deceived by this process because it still provides an output of the image encoder 200 and encoded image. Separate video decoding structures and functions are set forth elsewhere in O'Rourke.

The examiner correctly relies upon the a posteriori (MAP) functions at the bottom of column 4 and its corresponding Huber Markov Random Field (HMRF) as a basis to reject corresponding method independent claim 21 and its apparatus version in claim 24.

Most pertinent to the present claims and disclosed invention is the motion video representation in Figure 7, the discussion of which begins at topic 2 at the bottom of column 9 of O'Rourke through column 11, line 31. The specific discussion herein relies upon the corresponding teachings of Figures 2A, 2B, 3A and 3B. The examiner correctly relies upon the motion estimator 755 in Figure 7 along with its corresponding motion compensator 760 as a part of the video encoder 700 shown in this figure.

In view of the consideration in a comprehensive manner of the teachings in O'Rourke, it is clear to us that O'Rourke does not relate only to decoding operations and not any encoding operations to the extent the encoding operations of the preamble of independent claims 21 and 24 on appeal are to be imputed to the body of these claims. There is no recitation of any encoding operation per se in the body of these respective claims. In any event, the question is moot because O'Rourke clearly teaches a kind of encoding operation and decoding operation that involves "at least in part" as claimed the use of the MRF model as argued by the examiner. Because of this, we do not agree with appellants' characterization at the bottom of page 8 of the Brief that Figure 7 of O'Rourke represents a conventional block-based motion estimation figure. This could hardly be the case since both appellants and the reference teach encoding, in proper context, utilizing the MRF to the extent broadly recited.

Lastly, we consider the rejection of certain dependent claims under 35 U.S.C. § 103 in light of the collective teachings and showings of Tekalp in view of O'Rourke. We have concluded from our review of the examiner's and the appellants' positions

that the examiner has failed to establish a prima facie case of obviousness of the rejected subject matter of these claims. The examiner has merely presumptively, and in hindsight it appears, argued the combinability of O'Rourke in Tekalp "in order to obtain the current invention" as set forth at page 6 of the Answer. Appellants are correct at page 9 of the Brief that the examiner has failed to identify any cogent motivation for the proposed combination. The examiner has set forth essentially an unexplained conclusion that it would have been obvious to the artisan to apply the concept of Markov Random Fields to Tekalp's invention.

Even though we reverse the rejection of the identified claims in the third stated rejection under 35 U.S.C. § 103, we observe in passing that the teaching value of O'Rourke alone clearly applies to the MRF recitations of dependent claim 4 and the MAP recitation of dependent claim 8. The examiner has never set forth a rejection of corresponding independent claims 1 and 11 on appeal on the basis of O'Rourke alone, although we believe there is ample basis among the teachings of the reference to have done so. Likewise, the examiner has not asserted the

various coherences of dependent claim 5 and the scaling functions of claim 6 (mirrored in claims 15 and 16) on the basis of O'Rourke alone. Therefore, the examiner in our view is free to institute a rejection under 35 U.S.C. § 102 or 35 U.S.C. § 103 on the basis of O'Rourke alone and/or in view of Tekalp or some other available prior art.

In closing, we have affirmed the examiner's separate rejections under 35 U.S.C. § 102 of claims 1 through 3, 11 through 13, and 21 through 26. On the other hand, we have reversed the rejection of their respective dependent claims 4 through 6, 8, 14 through 16, and 18. Therefore, the decision of the examiner is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART

JAMES D. THOMAS Administrative Patent Judge	)
KENNETH W. HAIRSTON Administrative Patent Judge	) BOARD OF PATENT APPEALS AND INTERFERENCES
JOSEPH F. RUGGIERO Administrative Patent Judge	)

JDT:psb

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