

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 19

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MICHAEL J. BLACK and ALLAN D. JEPSON

Appeal No. 2000-1179
Application No. 08/923,436

ON BRIEF

Before BARRETT, FLEMING, and BLANKENSHIP, Administrative Patent Judges.

BLANKENSHIP, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1-14 and 17-20.

We reverse.

BACKGROUND

The invention is directed to a system for tracking and identifying view-based representations of an object through a sequence of images. Claim 1 is reproduced below.

1. An apparatus for identifying and tracking an object recorded in a sequence of images, comprising:

a memory for recording a set of training images; the images in the set of training images recording different views of the object;

means for generating a set of basis images corresponding to the set of training images recorded in said memory; the set of basis images characterizing variations of the views of the object in the set of training images; and

means for evaluating each image in the sequence of images to identify changes in view and structure of the object while tracking the object through the sequence of images with tracking parameters and identification coefficients; said evaluating means incrementally refining the tracking parameters and the identification coefficients by aligning, matching, and reconstructing a view of the object in the image with the views of the object represented in the set of basis images.

The examiner relies on the following references:

Moghaddam et al. (Moghaddam)	5,710,833	Jan. 20, 1998 (filed Apr. 20, 1995)
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Black et al. (Black)	5,802,220	Sep. 1, 1998 (filed Dec. 15, 1995)
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M. Bichsel et al. (Bichsel), Human Face Recognition and the Face Image Set's Topology, CVGIP: Image Understanding Vol. 59, No. 2, pp. 254-261, Mar. 1994.

Claims 1, 7-13, and 19 stand rejected under 35 U.S.C. § as being unpatentable over Moghaddam and Bichsel.

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Claims 2-6, 14, 17, 18, and 20 stand rejected under 35 U.S.C. § as being unpatentable over Moghaddam, Bichsel, and Black.

Claims 15 and 16 have been deemed to contain allowable subject matter, but are objected to as depending from a rejected claim.

We refer to the Final Rejection (Paper No. 8) and the Examiner's Answer (Paper No. 16) for a statement of the examiner's position and to the Brief (Paper No. 15) and the Reply Brief (Paper No. 17) for appellants' position with respect to the claims which stand rejected.

OPINION

In the section 103 rejection of claims 1, 7-13, and 19 over Moghaddam and Bichsel, the examiner sets forth findings with respect to Moghaddam, but turns to Bichsel to show "incrementally refining the tracking parameters and the identification coefficients" in the "face tracking method." (Final Rejection at 3.) Appellants respond that Bichsel does not disclose "iteratively recovering both parameter values and identification coefficients" as claimed. "Instead, Bichsel discloses a pattern matching technique that only involves the iterative recovery of parameter values." (Brief at 6.)

Appellants complain, in the Reply Brief (at 4), of a perceived shift in the examiner's position in the Answer. We understand the examiner's position in the Answer to be that Moghaddam discloses tracking parameters and identification coefficients (Answer at bottom of page 11). However, Bichsel is relied upon (as in the

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Final Rejection) to show incremental refining of tracking parameters and identification coefficients, which is deemed to be “well known” in the art. (Answer at 13.)

In any event, we agree with appellants that Bichsel does not disclose the features that the rejection attributes to the reference. The rejection asserts, with regard to Bichsel, that “the face size and orientation can [be] viewed as the identification coefficients and the position of the face can be viewed as the tracking parameters.” (Answer at 4-5.) However, the rejection appears to recognize no distinction between parameters and coefficients -- notwithstanding their recognized meanings in the art -- and uses the terms interchangeably. For example, “face/head size” and “face/head orientation” are first deemed to be parameters, and then (secondly) identification coefficients. (Id. at 11.)

In light of the commentary on page 11 of the Answer, the blurring of parameters and coefficients may be based on the perceived “definition” of “identification coefficients” at page 8, lines 1 through 5 of the specification. However, page 8 of the specification does not define “identification coefficients,” but merely refers to how they are to be used; i.e., the coefficients “are used to recognize changes of view in the object being tracked through the sequence of images 12.” As such, there is no satisfactory explanation in this record as to why an artisan would have regarded face size and orientation in Bichsel as “identification coefficients.” During patent prosecution, the USPTO is to apply to claims the broadest reasonable meaning of the words, consistent with their ordinary usage as they would be understood by one of

ordinary skill in the art. In re Morris, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997) (emphasis added).

Even if we were to assume that face size and orientation in Bichsel could properly be considered “identification coefficients,” the reference is not express in disclosing incremental refinement of the face size and orientation by aligning, matching, and reconstructing a view of the object in the image, as required of the identification coefficients in claim 1. The Bichsel reference speaks of the actual process of “real-time face tracking” in general terms (page 261, first column). The rejection does not point out, nor explain, how the reference meets the above-noted requirements of claim 1. Nor do we find any clear statement with respect to how the alleged teaching of incremental refining of the “identification coefficients” is to be combined with the “set of basis images,” for which the rejection relies on Moghaddam. The one who bears the initial burden of presenting a prima facie case of unpatentability is the examiner. In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

We conclude that the rejection fails to set forth a case of prima facie obviousness for the subject matter as a whole of claim 1. The other independent claims on appeal (10 and 19) set forth process steps having substantially the same language as the limitations we have addressed in claim 1. We therefore do not sustain the rejection of claims 1, 7-13, and 19 under 35 U.S.C. § 103 as being unpatentable over Moghaddam and Bichsel. Since the Black reference does not remedy the deficiencies of the rejection applied against the independent claims, we do not sustain

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the rejection of claims 2-6, 14, 17, 18, and 20 under 35 U.S.C. § as being unpatentable over Moghaddam, Bichsel, and Black.

CONCLUSION

The rejections of claims 1-14 and 17-20 under 35 U.S.C. § 103 are reversed.

REVERSED

LEE E. BARRETT)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
MICHAEL R. FLEMING)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
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HOWARD B. BLANKENSHIP)	
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