

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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

Appeal No. 1998-2718
Application No. 08/373,937

ON BRIEF

Before HAIRSTON, JERRY SMITH, and FLEMING, Administrative Patent Judges

HAIRSTON, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 14 through 31. In an Amendment After Final¹ (paper number 11), claim 27 was amended.

The disclosed invention relates to a method and apparatus

¹ According to the examiner (paper number 12), the amendment had the effect of overcoming the rejections under 35 U.S.C. § 112.

that uses a plurality of classifier networks that are neural networks. Feature vectors are generated from a scanned character image, and each of the neural networks in the classifier network is configured to receive at least two feature vectors.

Claim 14 is illustrative of the claimed invention, and it reads as follows:

14. Apparatus for recognizing an alphanumeric character from an image of said character, said apparatus comprising:

a first classifier network having a first input terminal coupled to receive a first feature vector of said character, a second input terminal coupled to receive a second feature vector of said character, and a plurality of output terminals;

a second classifier network having a first input terminal coupled to receive said second feature vector, a second input terminal coupled to receive a third feature vector of said character, and a plurality of output terminals;

a third classifier network having a plurality of input terminals coupled to said pluralities of output terminals of said first and second classifier networks, and a plurality of output terminals operable to carry a statistical value corresponding to a predetermined classification of said image; and

wherein said third classifier network is operable to carry out consecutive statistical

Appeal No. 1998-2718
Application No. 08/373,937

operations on information received from said first and second classifier networks until said statistical value is generated.

The references relied on by the examiner are:

Fukumizu 1991	5,060,278	Oct. 22,
Lincoln 1992	5,155,801	Oct. 13,
Matsuba et al. (Matsuba)	5,255,347	Oct. 19, 1993

Claims 14, 18, 19, 22 and 25 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Fukumizu.

Claims 15 through 17 and 26 through 29 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Fukumizu in view of Matsuba.

Claims 20, 21², 30 and 31 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Fukumizu in view of Lincoln.

Claims 23 and 24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Fukumizu.

²The last paragraph on page 7 of the answer makes clear that claim 21 should be included under this rejection.

Appeal No. 1998-2718
Application No. 08/373,937

Reference is made to the briefs and the answer for the respective positions of the appellant and the examiner.

OPINION

We have carefully considered the entire record before us, and we will reverse all of the rejections of record.

Turning first to the 35 U.S.C. § 102(b) rejection of claims 14, 18, 19, 22 and 25, the examiner is of the opinion (answer,

page 5) that each of the neural networks (i.e., NET 0 through NET 9) in Fukumizu (Figure 1) has "a first input terminal coupled to receive a first feature vector of a character and a second feature vector of a character (col. 3, lines 44-57 and fig. 1, element 10)." Appellant argues (brief, page 10; reply brief, page 4) that each of the neural networks NET 0 through NET 9 in Fukumizu is configured to receive "*one and only one* feature vector at a time."

Inasmuch as Fukumizu clearly teaches (Abstract; column 2, line 39; column 3, line 48; column 9, line 61; column 10, line 33; column 11, lines 7 and 54; column 12, line 34; and column

Appeal No. 1998-2718
Application No. 08/373,937

13, lines 13 and 61) that each of the neural networks receives one feature vector, we agree with appellant's argument. Once that single feature vector is received at each of the neural networks, multiple input units within each of the neural networks are used to process the feature vector (answer, page 9). We likewise agree with appellant's argument (reply brief, page 4) that "it is clear that neither Figure 8 nor any other section of Fukumizu discloses a neural network that receives multiple feature vectors in parallel." For this reason, the 35 U.S.C. § 102(b) rejection of claims 14, 18, 19, 22 and 25 is reversed.

For the same reason, the 35 U.S.C. § 103(a) rejection of claims 23 and 24 based upon the teachings of Fukumizu is reversed.

Turning next to the 35 U.S.C. § 103(a) rejection of claims 15 through 17 and 26 through 29, appellant argues (brief, page 13) that :

Matsuba at most suggests providing more of Fukumizu's preprocessing blocks 13 to extract additional feature vectors, and then providing more of Fukumizu's network groups NET0-NET9 to each process *one and only one* of these additional feature

Appeal No. 1998-2718
Application No. 08/373,937

vectors. Thus, it is clear that because Matsuba does not supply the teaching missing from Fukumizu--namely processing multiple feature data in parallel with a single neural network--the combination of these references does not and cannot render claim 26 obvious.

We agree with appellant's argument. Accordingly, the 35 U.S.C.

§ 103(a) rejection of independent claim 26 and dependent claims 15 through 17 and 27 through 29 is reversed.

Turning lastly to the 35 U.S.C. § 103(a) rejection of claims 20, 21, 30 and 31, appellant argues (brief, page 14) that "the neural networks 11, 12, and 13 of Lincoln's Figure 1 . . . are, like Fukumizu's neural networks, each coupled to receive one and only one feature vector, and thus also cannot process a

respective pair of multiple feature vectors." We agree. In summary, the 35 U.S.C. § 103(a) rejection of claims 20, 21, 30 and 31 is reversed.

DECISION

The decision of the examiner rejecting claims 14, 18, 19,

Appeal No. 1998-2718
Application No. 08/373,937

22 and 25 under 35 U.S.C. § 102(b) is reversed, and the decision of the examiner rejecting claims 15 through 17, 20, 21, 23, 24 and 26 through 31 under 35 U.S.C. § 103(a) is reversed.

REVERSED

KENNETH W. HAIRSTON)	
Administrative Patent Judge)	
)	
)	
)	BOARD OF PATENT
JERRY SMITH)	APPEALS AND
Administrative Patent Judge)	INTERFERENCES
)	
)	
)	
MICHAEL R. FLEMING)	
Administrative Patent Judge)	

kwh/vsh

Appeal No. 1998-2718
Application No. 08/373,937

BRYAN A. SANTARELLI
SEED AND BERRY
6300 COLUMBIA CENTER
701 FIFTH AVENUE
SEATTLE, WA 98104