

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

# PCT

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**  
(PCT Rule 43*bis*.1)

To:

see form PCT/ISA/220

Date of mailing  
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
PCT/GB2018/052353

International filing date (day/month/year)  
20.08.2018

Priority date (day/month/year)  
06.09.2017

International Patent Classification (IPC) or both national classification and IPC  
INV. G06F3/01

Applicant  
FOVO TECHNOLOGY LIMITED

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA:



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Date of completion of this opinion

see form  
PCT/ISA/210

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**Box No. I Basis of the opinion**

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1. With regard to the **language**, this opinion has been established on the basis of:
  - the international application in the language in which it was filed.
  - a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).
2.  This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3.  With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:
  - a.  forming part of the international application as filed:
    - in the form of an Annex C/ST.25 text file.
    - on paper or in the form of an image file.
  - b.  furnished together with the international application under PCT Rule 13ter.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
  - c.  furnished subsequent to the international filing date for the purposes of international search only:
    - in the form of an Annex C/ST.25 text file (Rule 13ter.1(a)).
    - on paper or in the form of an image file (Rule 13ter.1(b) and Administrative Instructions, Section 713).
4.  In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

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**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

|                               |             |             |
|-------------------------------|-------------|-------------|
| Novelty (N)                   | Yes: Claims | <u>1-16</u> |
|                               | No: Claims  |             |
| Inventive step (IS)           | Yes: Claims |             |
|                               | No: Claims  | <u>1-16</u> |
| Industrial applicability (IA) | Yes: Claims | <u>1-16</u> |
|                               | No: Claims  |             |

2. Citations and explanations

see separate sheet

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**Box No. VII Certain defects in the international application**

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The following defects in the form or contents of the international application have been noted:

see separate sheet

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1 Reference is made to the following documents:

D1 US 2015/103003 A1 (KERR BERNARD JAMES [US] ET AL) 16  
April 2015

D2 US 2013/178287 A1 (YAHAV GIORA [IL]) 11 July 2013

INDEPENDENT CLAIMS 1, 13

2 D1 is regarded as being the prior art closest to the subject-matter of claim 1, and discloses

A method of modifying an image on a computational device (cf. abstract, "scaling a visual element displayed via a display device"), the method comprising:

providing image data representative of at least a portion of a three-dimensional scene, the scene being visible to a human observer from a viewing point when fixating on a visual fixation point within the scene (cf. fig. 3 with [0044], "3D virtual image 338");

displaying an image by rendering the image data on a display device (cf. fig. 1, "display 34");

computationally processing the image data so as to enclose each object of the three dimensional scene in a three dimensional detection region which is configured to identify coincidence of the respective object with the visual fixation point (cf. fig. 13A, step '1314');

capturing user input by user input capturing means, wherein the capturing comprises monitoring a point of gaze of a user so as to determine a spatial coordinate in

the three dimensional scene, the coordinate representing a movable visual fixation point of the human observer (cf. claim 10, "receiving gaze tracking data"; see also fig. 13A, step '1302');

modifying the image by:

computationally isolating a fixation region within the image, the fixation region being defined by a subset of image data representing an image object within the image, wherein the image object is associated with the visual fixation point (cf. claim 10, "locking a locked gaze location on the screen, wherein the locked gaze location includes at least a portion of the visual element");

spatially reconstructing the subset of image data to computationally expand the fixation region (cf. claim 10, "scaling the visual element by a predetermined amount to an enlarged size");

~~spatially reconstructing remaining image data relative to the subset of image data to computationally compress a peripheral region of the image relative to the fixation region in a progressive fashion as a function of a distance from the fixation region,~~

determining a distance between a head of the user and the display device (cf. fig. 13a, step '1306');

computationally processing the image data so as to move the fixation region towards a centre of a display of the display device, wherein the fixation region represents the object enclosed by the respective detection region; wherein the computational expansion of the fixation region and the computational compression of the peripheral region are modulated by the distance between the head of the user and the display device (cf. [0071], "translating the locked gaze location 510 to the center of the display screen 404 and scaling up all of the displayed visual elements around that point").

- 2.1 The subject-matter of claim 1 therefore differs from this known method in that it is further

spatially reconstructing remaining image data relative to the subset of image data to computationally compress a peripheral region of the image relative to the fixation region in a progressive fashion as a function of a distance from the fixation region.

2.2 The problem to be solved by the present invention may therefore be regarded as to select an imaging mode for a peripheral region.

2.3 The solution proposed in claim 1 of the present application cannot be considered to involve an inventive step (Article 33(3) PCT).

The suggested "compression" (which is understood as "minification", see description page 9, line 15) is in fact specifying mere "presentation of information", which can already for lack of technical character not contribute to inventive step.

This set aside for the moment, it is further noted that the skilled person would anyway know that the "scaling module" of D1 is fully capable of not only scaling up, but also scaling down. Hence, it would be obvious to the skilled person to select either possibility, merely dependent on subjective preference.

2.4 For fully analogous reasons, the subject-matter of claim 1 appears to lack inventive step also over the disclosure of D2 (see the relevant passages cited in the ISR).

2.5 The same reasoning applies, mutatis mutandis, to the subject-matter of the corresponding independent system claim 13, which therefore also lacks inventive step.

#### DEPENDENT CLAIMS 2 TO 12 AND 14 TO 16

3 Dependent claims 2 to 12 and 14 to 16 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step.

3.1 D1 (cf. [0055]) discloses "other shapes or bounding areas that may approximate the actual gaze location of a user or capture a neighborhood around an estimated gaze location."

Hence, a modification of said "detection region" and/or "detection sensitivity" as specified in claims 2 to 5 would be obvious to the skilled person, not being based on inventive step (Article 33(3) PCT).

- 3.2 The sequence of method steps specified in claim 6 would appear implicit in claim 1. Hence, also the subject-matter of claim 6 cannot be considered inventive.
- 3.3 Since D1's paragraph [0038] discloses that "the position sensor system 48 may be utilized to determine a direction, velocity and acceleration of a user's head", the subject-matter of claims 7 and 14 cannot be considered inventive.
- 3.4 Claim 8 appears to be directed to mere "presentation of information". Its features can therefore already for lack of technical character not provide the basis for inventive step.
- 3.5 The detection of the entry of the virtual fixation point into the detection region, specified in claim 9, would appear implicit in claim 1. Hence, also the subject-matter of claim 9 cannot be considered inventive.
- 3.6 Due to the presence of detected "direction" and "velocity" it appears obvious to "predict", based on said parameter, a fixation point. Also the subject-matter of claims 10 and 11 do hence not appear inventive.
- 3.7 D1 discloses (cf. [0025]) "three-dimensional (3D) holographic objects", such objects necessarily being computer-generated. Hence the subject-matter of claim 12 cannot be considered inventive.
- 3.8 Since D1 discloses (cf. [0021]) that "scaling module 14 may be loaded into memory 26 and executed by a processor 30 of the computing device 22 to perform one or more of the methods and processes [...]" can the subject-matter of claims 15 and 16 not be considered inventive.

## **Re Item VII**

### **Certain defects in the international application**

- 4 Independent claims 1 and 13 are not in the two-part form in accordance with Rule 6.3(b) PCT, which in the present case would be appropriate, with those features known in combination from the prior art being placed in the preamble (Rule 6.3(b)(i) PCT) and with the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT).

- 5 Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1 and D2 is not mentioned in the description, nor are these documents identified therein.
- 6 The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).