

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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SONY CORPORATION  
Petitioner

v.

Patent of YISSUM RESEARCH DEVELOPMENT COMPANY OF THE  
HEBREW UNIVERSITY OF JERUSALEM  
Patent Owner

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Case IPR2013-00219 (SCM)<sup>1</sup>  
Patent 7,477,284

Title: SYSTEM AND METHOD FOR CAPTURING AND VIEWING  
STEREOSCOPIC PANORAMIC IMAGES

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**DECLARATION OF IRFAN ESSA PH.D.**

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<sup>1</sup> The IPR2013-00327 proceeding has been joined with this proceeding.

I, Dr. Irfan Essa, declare:

1. I am making this declaration at the request of Yissum Research Development Company of the Hebrew University of Jerusalem, in the matter of the *Inter Partes* Review Case IPR2013-00219, of U.S. Patent No 7,477,284 (“the ’284 Patent,” SONY-1001) to Peleg.

2. I am being compensated for my work in this matter. My compensation in no way depends upon the outcome of this proceeding.

3. In the preparation of this declaration, I have studied:

- (1) The Sony’s Petitions in IPR2013-00219 and IPR2013-00327;
- (2) The Board’s Decisions in IPR2013-00219 and IPR2013-00327;
- (3) The Declaration of Dr. Trevor Darrell, SONY-1013;
- (4) The ’284 Patent, SONY-1001;
- (5) U.S. Patent No. 6,665,003 (“the ’003 Patent), SONY-1002;
- (6) The English translation of Kawakita et al., (“Kawakita”), SONY-1004;
- (7) The English translation of Asahi et al., (“Asahi”), SONY-1010.

4. In forming the opinions expressed below, I have considered:
- (1) The documents listed above;
  - (2) The relevant legal standards, including the standard for obviousness provided in *KSR International Co. v. Teleflex, Inc.*, 550 U.S. 398 (2007) and any additional authoritative documents as cited in the body of this declaration; and
  - (3) My knowledge and experience based upon my work in this area as described below.

**Highlighted Qualifications and Professional Experience**

5. I am a Professor in the School of Interactive Computing (IC) of the College of Computing (CoC), and Adjunct Professor in the School of Electrical and Computer Engineering, Georgia Institute of Technology (GA Tech), in Atlanta, Georgia, USA. Currently, I am also serving as the Director/Assistant Dean of Off Campus Initiatives for the College of Computing at Georgia Institute of Technology.

6. I received my Ph.D. degree from the Massachusetts Institute of Technology (“MIT”) – Cambridge in 1995.

7. I received my M.S. degree from MIT – Cambridge in 1990.

8. I received my B.S. degree from Illinois Institute of Technology – Chicago in 1988.

9. At Georgia Institute of Technology, I have taught graduate level courses in the field of computer vision and related technologies, including CS 7321 Low-level Computer Vision, CS 7322 High-level Computer Vision CS 4480/8803dfx Digital Video Special Effects (SE), CS 8803PHO Advanced Computational Photography.

10. I have conducted extensive research in the areas of Computer Vision, Computer Graphics, Computational Perception, Robotics and Computer Animation, Machine Learning, and Social Computing, with potential impact on Video Analysis and Production (e.g., Computational Photography & Video, Image-based Modeling and Rendering, etc.) Human Computer Interaction, Artificial Intelligence and Computational Journalism research.

11. I have authored a high number of publications in peer reviewed journals, books, and conferences in the field of computer vision and related technologies.

12. A true and correct copy of my curriculum vitae (“CV”) is attached to this declaration. (*See* YRD-2009.)

13. In my opinion, the level of ordinary skill in the art for the ’284 Patent

is at least a Master of Science degree in electrical engineering, computer engineering, computer science, or physics combined with relevant graduate level experience in this technology or relevant industry experience.

14. Based upon my experience and education, I consider myself to be a person of ordinary skill in the art. Unless otherwise stated, my testimony below refers to the knowledge of one of ordinary skill in the generation and display of stereoscopic panoramic images technology during the 1998-1999 time period, including the priority date of the '284 Patent.

#### **Recent Testimony**

15. I have never provided testimony in a patent related legal proceeding.

#### **Relevant Legal Standards**

16. I have been asked to provide my opinions regarding whether the claims of the '284 Patent are anticipated or would have been obvious to a person having ordinary skill in the art at the time of the alleged invention, in light of the cited references.

17. It is my understanding that, to anticipate a claim under 35 U.S.C. § 102, a reference must teach every element of the claim either expressly or inherently. It is my understanding that an element is inherent if it is necessarily present in the cited reference. It is my understanding that a claimed invention is

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