

I, Joseph J. LaViola, Ph.D., declare as follows:

I. INTRODUCTION

1. I have been asked by the party requesting this review, Supercell Oy (“Petitioner”), to provide my expert opinions in support of the above-captioned petition for post grant review of U.S. Patent No. 10,406,432 (the “‘432 patent”), challenging the patentability of claims 1-9 of the ‘432 patent.

2. I currently hold the opinions set forth in this declaration.

3. In summary, it is my opinion that the references cited below render obvious the challenged claims of the challenged patent. My detailed opinions on the claims are set forth below.

II. BACKGROUND AND QUALIFICATIONS

4. I earned a Bachelor of Science degree in Computer Science from Florida Atlantic University in 1996. I earned Masters of Science degrees in Computer Science and Applied Mathematics from Brown University in 2000 and 2001, respectively. I earned a Ph.D. in Computer Science from Brown University in 2005.

5. I have over 20 years of experience working in the virtual reality (“VR”) and augmented reality (“AR”) fields, as well as advancing and studying three-dimensional (“3D”) interaction techniques and user interfaces for use in both VR and AR environments.

6. I have been working as a professor in the computer science department at the University of Central Florida (UCF) located in Orlando, FL since January 2007. I am currently the Charles N. Millican Professor of Computer Science and have held this position since 2018. Between 2012 and 2018 I was an associate professor with tenure at UCF and was named the Charles N. Millican Faculty Fellow and Associate Professor from 2015-2018 and the CAE Link Professor and Associate Professor from 2012 to 2015. From 2007 to 2012 I was an assistant professor of computer science at UCF and was named an SAIC Faculty Fellow from 2010 thru 2012.

7. I am the founding director of the Interactive Computing Experiences Research Cluster which contains the Interactive Systems and User Experience research lab that has been in operation since January 2007. As director of this lab, I supervise over twelve graduate students, undergraduate students, and staff working on various research projects in the general area of human-computer interaction with specific interests in 3D user interfaces, 2D and 3D gesture recognition, virtual and augmented reality, and human robot interaction. In addition, since 2013, I have served as an Adjunct Associate Professor of Computer Science at Brown University, located in Providence, Rhode Island and recently named a visiting scholar in 2019.

8. I serve as Associate Editor for various journals in the area of human-computer interaction, including the International Journal of Human-Computer Studies and the Association for Computing Machinery's Transactions on Interactive Intelligent Systems. I served on the editorial board of the Institute of Electrical and Electronics Engineers' ("IEEE") Computer Graphics & Applications. I have also served as Program Chair for the IEEE Virtual Reality conference and the IEEE Symposium on 3D User Interfaces.

9. I have contributed to more than 40 peer-reviewed journal publications and over 100 refereed conferences and workshop papers, the majority of which deal with virtual and augmented reality and the study of 3D user interfaces. For instance, I am the lead author of the second edition of the most comprehensive textbook on 3D user interaction, entitled "3D User Interfaces: Theory and Practice." The first edition of this textbook came out in 2004 with the second edition published in 2017. As part of that work, I analyzed many different types of input and output hardware, 3D user interface techniques and methodologies, and general topics related to virtual and augmented reality. Since the spring semester of 2008, I have used this book as the main text for CAP 6121, 3D User Interfaces for Games and Virtual Reality, a graduate level course on all aspects of 3D user interfaces. I have taught this course 13 times at UCF. The textbook, course

instruction, and my research work in 3D user interfaces make me uniquely qualified to opine on the patentability of the '432 patent.

10. My professional background and technical qualifications also are reflected in my Curriculum Vitae, which is attached.

III. COMPENSATION AND RELATIONSHIP WITH PARTIES

11. I am being compensated for my time in this matter. This compensation is not contingent upon my performance, the outcome of this matter, or any issues involved in or related to this matter.

12. I have no financial interest in Petitioner or any related parties. I have been informed that GREE, Inc. ("GREE") owns the challenged patent. I have no financial interest in and have no contact with GREE beyond the kinds of cursory interactions I often have with game industry professionals at conferences. I similarly have no financial interest in the challenged patent and have not had any contact with the named inventors.

IV. MATERIAL CONSIDERED

13. I have reviewed and considered, in the preparation of this declaration, the following related to the challenged patents:

- a. The '432 patent (Ex. 1001) and the prosecution file history for the '432 patent (Ex. 1002).

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