UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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LG ELECTRONICS, INC.,

Petitioner,

v.

JAWBONE INNOVATIONS, LLC,

Patent Owner.


Patent No. 11,122,357
Filing Date:  August 5, 2013
Issue Date:  September 14, 2021

Inventor:  FORMING VIRTUAL MICROPHONE ARRAYS USING
DUAL OMNIDIRECTIONAL MICROPHONE ARRAY (DOMA)


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**DECLARATION OF AKBAR M. SAYED, Ph.D.**

Case No. IPR2023-01134

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I, Akbar M. Sayeed, declare as follows:

1.　　I have been asked by counsel for Patent Owner, Jawbone Innovations, LLC ("Jawbone" or "Patent Owner"), to review U.S. Patent No. 11,122,357 (the "'357 Patent") entitled FORMING VIRTUAL MICROPHONE ARRAYS USING DUAL OMNIDIRECTIONAL MICROPHONE ARRAY (DOMA), and to provide my technical review, analysis, insights, and opinions regarding the '357 Patent in view of the prior art cited by Petitioner LG Electronics, Inc. ("LG" or "Petitioner"). I submit this declaration in support of Patent Owner's Preliminary Response in this IPR proceeding. I have personal knowledge of the matters stated herein and would be competent to testify to them if required.

2.　　I have been retained on behalf of Jawbone for the above-captioned *inter partes* review proceeding.  I understand that the '357 Patent is currently assigned to Jawbone.

3.　　I am over 18 years of age.  I have personal knowledge of the facts stated in this Declaration and could testify competently if asked to do so.

## I.　INTRODUCTION

### A.　Background and Qualifications

4.　　I have reviewed and am familiar with the specification of the '357 Patent.  I understand the '357 Patent has been provided as Exhibit 1001.  I will cite to the specification using the following format: '357 Patent at col.:line.

5.     My CV is being submitted simultaneously herewith (Ex. 2003).

6.     I received my B.S. degree in Electrical and Computer Engineering (ECE) from the University of Wisconsin-Madison in 1991. I received my M.S. and Ph.D. degrees in ECE from the University of Illinois at Urbana-Champaign in 1993 and 1996, respectively. In my undergraduate and graduate studies, I look a variety of courses generally focusing on the areas of signal processing, communication theory, information theory, electromagnetics and antennas, and statistical techniques in signal processing and communications. My Ph.D. dissertation was entitled "Statistical Time-Frequency Analysis" in which I proposed new framework for statistical signal processing using time-frequency representations, mathematical tools that extend the powerful theory of Fourier transforms and Fourier analysis to time-varying signals and systems.

7.     I currently work as an Independent Researcher, Engineer and Technical Consultant, and worked as professor of Electrical and Computer Engineering  at the University of Wisconsin-Madison from 1997-2021, where I directed the _Wireless Communications and Sensing Laboratory_ until my retirement on August 1, 2021 to pursue a career as an independent researcher and consultant.

8.     My current work as an independent researcher and consultant spans STEM (science, technology, engineering & mathematics) fields through the lens of

information science and technology. My STEM skills and experience cover a broad range of areas, including:

- Wireless technologies for sensing, processing and communication of information (5G/6G/XG), internet of things, and emerging technologies for untapped spectrum (e.g., millimeter-wave, THz).

- Sensing and acquisition of data in new modalities through technological innovation.

- Machine learning and statistical techniques for extracting useful information from data.

- Quantum information science and technology (computing, sensing and communication) spanning foundational concepts, algorithms, and platforms.

- Conception, design and development of new information technologies through basic theory, computational modeling, and hybrid software-hardware prototyping and experimentation.

9. I have written/co-written 200+ papers in leading journals and conferences. I am an inventor/co-inventor of 10 patents.

10. After receiving my Ph.D. in 1996, I spent a year at Rice University as a postdoctoral research fellow where I expanded the scope of my research to the growing field of wireless communications that underpins much of mobile cellular

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