

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT5189143

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
STEPHEN O. LEMAY	09/06/2018
MICHAEL R. BASTIAN	08/20/2018
ROMAN HOLENSTEIN	08/28/2018
MINWOO JEONG	08/20/2018
CHARLES MAALOUF	08/06/2018
BRANDON J. NEWENDORP	08/07/2018
HERIBERTO NIETO	08/20/2018
TIMOTHY PAEK	08/12/2018
JOANNA PETERSON	08/09/2018
SHAWN SCULLY	08/10/2018
SRIKRISHNA SRIDHAR	09/25/2018
BRANDT M. WESTING	08/14/2018
SHIWEN ZHAO	08/22/2018
RECEIVING PARTY DATA	
Name:	APPLE INC.
Street Address:	ONE APPLE PARK WAY
City:	CUPERTINO
State/Country:	CALIFORNIA
Postal Code:	95014
PROPERTY NUMBERS Total: 1	
Property Type	Number
Application Number:	16032487
CORRESPONDENCE DATA	
Fax Number:	
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>	
Phone:	(650) 798-0314
Email:	morgan.adams@dentons.com
Correspondent Name:	CHRISTOPHER B. EIDE
Address Line 1:	1530 PAGE MILL ROAD
PATENT	

Address Line 2: SUITE 200
Address Line 4: PALO ALTO, CALIFORNIA 94304

ATTORNEY DOCKET NUMBER: P38111US1/77870000302101

NAME OF SUBMITTER: CHRISTOPHER B. EIDE

SIGNATURE: /Christopher B. Eide/

DATE SIGNED: 10/15/2018

Total Attachments: 15

source=P38111US1_Assignment#page1.tif
source=P38111US1_Assignment#page2.tif
source=P38111US1_Assignment#page3.tif
source=P38111US1_Assignment#page4.tif
source=P38111US1_Assignment#page5.tif
source=P38111US1_Assignment#page6.tif
source=P38111US1_Assignment#page7.tif
source=P38111US1_Assignment#page8.tif
source=P38111US1_Assignment#page9.tif
source=P38111US1_Assignment#page10.tif
source=P38111US1_Assignment#page11.tif
source=P38111US1_Assignment#page12.tif
source=P38111US1_Assignment#page13.tif
source=P38111US1_Assignment#page14.tif
source=P38111US1_Assignment#page15.tif

ASSIGNMENT

This Assignment is by:

1. Stephen O. LEMAY
c/o Apple Inc.
One Apple Park Way
Cupertino, California 95014
2. Michael R. BASTIAN
c/o Apple Inc.
One Apple Park Way
Cupertino, California 95014
3. Roman HOLENSTEIN
c/o Apple Inc.
One Apple Park Way
Cupertino, California 95014
4. Minwoo JEONG
c/o Apple Inc.
One Apple Park Way
Cupertino, California 95014
5. Charles MAALOUF
c/o Apple Inc.
One Apple Park Way
Cupertino, California 95014
6. Brandon J. NEWENDORP
c/o Apple Inc.
One Apple Park Way
Cupertino, California 95014
7. Heriberto NIETO
c/o Apple Inc.
One Apple Park Way
Cupertino, California 95014
8. Timothy PAEK
c/o Apple Inc.
One Apple Park Way
Cupertino, California 95014
9. Joanna PETERSON
c/o Apple Inc.
One Apple Park Way
Cupertino, California 95014
10. Shawn SCULLY
c/o Apple Inc.
One Apple Park Way
Cupertino, California 95014

11. Srikrishna SRIDHAR
c/o Apple Inc.
One Apple Park Way
Cupertino, California 95014
12. Brandt M. WESTING
c/o Apple Inc.
One Apple Park Way
Cupertino, California 95014
13. Shiwen ZHAO
c/o Apple Inc.
One Apple Park Way
Cupertino, California 95014

(referred to in this Assignment as "Assignors"), whose residence or mailing address information is listed above.

This Assignment is to:

Assignee: Apple Inc.
Address: One Apple Park Way, Cupertino, California 95014
A juristic entity duly organized under and pursuant to the laws of: California

(referred to in this Assignment as "Assignee"), which desires to acquire the entire right, title and interest in, to and under said patent application and the inventions covered thereby.

Assignors have invented certain new and useful inventions in:

RAISE TO SPEAK

for which the following application has been filed in the United States of America.

Serial No.: 16/032,487

Filing Date: July 11, 2018

For good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged,

1. Assignors hereby sell, assign, transfer and set over, to Assignee, its successors, legal representatives and assigns, the entire right, title and interest in and to the above-mentioned inventions, provisional application and application for letters patent, any and all non-provisionals, divisions, continuations, and continuations-in-part claiming priority thereto or the benefit thereof, substitutions of said applications, and any and all letters patent or patents in the United States of America and all foreign countries or jurisdictions which may be granted therefor and thereon, including, without limitation, any modifications to such letters patent or patents such as through reissue, re-examination or other post-grant proceeding, any and all extensions of said letters patent or patents, and all rights under the International Convention for the Protection of Industrial Property, the same to be held and enjoyed by Assignee (including any right to institute actions and to recover damages for past, present and future infringement), for its own use and the use of its successors, legal representatives and assigns, to the full end of the term or terms for which letters patent or patents may be granted, as fully and entirely as the same would have been held and enjoyed by Assignors, had this sale and assignment not been made.


2. Assignors represent, warrant and covenant (a) that, at the time of execution and delivery of this agreement, Assignors are the sole and lawful owners of the entire right, title and interest in and to said inventions and said non-provisional application and application for letters patent, and that the same are unencumbered and that Assignors have good and full right and lawful authority to sell and convey the same in the manner set forth in this agreement, or (b) that Assignors solely and lawfully owned the entire right, title and interest in and to said inventions and said non-provisional application and application for letters patent, and that the same were unencumbered and that Assignors sold, assigned, transferred and set over to Assignee and its successors, legal representatives and assigns, the entire right, title and interest in and to said inventions and said non-provisional application and application for letters patent.

3. Assignors shall promptly sign and execute all papers and documents, take all lawful oaths, and do all acts necessary, required or useful for the procurement, maintenance, enforcement, defense or otherwise to secure title thereto to the Assignee, at the sole cost and expense of Assignee, its successors, legal representatives and assigns, in each case including, without limitation, arising from or relating to (a) said inventions, or said non-provisional application and application for letters patent; (b) any division, continuation, or continuation-in-part claiming priority thereto or the benefit thereof, or any substitution of any such application, or (c) any letters patent or patents for said inventions in any country or jurisdiction, including, without limitation, any modifications to such letters patent or patents such as through any reissue, re-examination or other post-grant proceeding. To be clear, for purposes of this paragraph, "procurement, maintenance, enforcement, defense" shall include, without limitation, any preparation, prosecution, pre-grant proceeding, and post-grant proceeding, whether before a patent office or other administrative body or judicial body with jurisdiction therefor.

4. Assignors hereby authorize and request the Commissioner of Patents in the United States to issue the above mentioned letters patent of the United States to Assignee as the assignee of said inventions and the letters patent to be issued thereon for the sole use of Assignee, its successors, legal representatives and assigns.

5. I hereby grant to attorneys of Dentons US LLP the power to insert on this Assignment any further identification which may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark office for recordation of this Assignment, including the power to insert on this Assignment the application number and filing date of said application when known.

In witness whereof, executed by the undersigned on the date(s) opposite the undersigned name(s).

Date: 9/6/18 Signature: 
Stephen O. LEMAY

Date: _____ Signature: _____
Michael R. BASTIAN

Date: _____ Signature: _____
Roman HOLENSTEIN

Date: _____ Signature: _____
Minwoo JEONG

Date: _____ Signature: _____
Charles MAALOUF

Date: _____ Signature: _____
Brandon J. NEWENDORP

Date: _____ Signature: _____
Heriberto NIETO

Date: _____ Signature: _____
Timothy PAEK

Date: _____ Signature: _____
Joanna PETERSON

Date: _____ Signature: _____
Shawn SCULLY

Date: _____ Signature: _____
Srikrishna SRIDHAR

3. Assignors shall promptly sign and execute all papers and documents, take all lawful oaths, and do all acts necessary, required or useful for the procurement, maintenance, enforcement, defense or otherwise to secure title thereto to the Assignee, at the sole cost and expense of Assignee, its successors, legal representatives and assigns, in each case including, without limitation, arising from or relating to (a) said inventions, or said non-provisional application and application for letters patent; (b) any division, continuation, or continuation-in-part claiming priority thereto or the benefit thereof, or any substitution of any such application, or (c) any letters patent or patents for said inventions in any country or jurisdiction, including, without limitation, any modifications to such letters patent or patents such as through any reissue, re-examination or other post-grant proceeding. To be clear, for purposes of this paragraph, "procurement, maintenance, enforcement, defense" shall include, without limitation, any preparation, prosecution, pre-grant proceeding, and post-grant proceeding, whether before a patent office or other administrative body or judicial body with jurisdiction therefor.

4. Assignors hereby authorize and request the Commissioner of Patents in the United States to issue the above mentioned letters patent of the United States to Assignee as the assignee of said inventions and the letters patent to be issued thereon for the sole use of Assignee, its successors, legal representatives and assigns.

5. I hereby grant to attorneys of Dentons US LLP the power to insert on this Assignment any further identification which may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark office for recordation of this Assignment, including the power to insert on this Assignment the application number and filing date of said application when known.

In witness whereby, executed by the undersigned on the date(s) opposite the undersigned name(s).

Date: _____ Signature: _____

Stephen O. LEMAY

Date: 20 Aug. 2015

Signature: Michael R. Bastian

Michael R. BASTIAN

Date: _____

Signature: _____

Roman HOLENSTEIN

Date: _____

Signature: _____

Minwoo JEONG

Date: _____

Signature: _____

Charles MAALOUF

Date: _____

Signature: _____

Brandon J. NEWENDORP

Date: _____

Signature: _____

Heriberto NIETO

Date: _____

Signature: _____

Timothy PAEK

Date: _____

Signature: _____

Joanna PETERSON

Date: _____

Signature: _____

Shawn SCULLY

Date: _____

Signature: _____

Srikrishna SRIDHAR

3. Assignors shall promptly sign and execute all papers and documents, take all lawful oaths, and do all acts necessary, required or useful for the procurement, maintenance, enforcement, defense or otherwise to secure title thereto to the Assignee, at the sole cost and expense of Assignee, its successors, legal representatives and assigns, in each case including, without limitation, arising from or relating to (a) said inventions, or said non-provisional application and application for letters patent; (b) any division, continuation, or continuation-in-part claiming priority thereto or the benefit thereof, or any substitution of any such application, or (c) any letters patent or patents for said inventions in any country or jurisdiction, including, without limitation, any modifications to such letters patent or patents such as through any reissue, re-examination or other post-grant proceeding. To be clear, for purposes of this paragraph, "procurement, maintenance, enforcement, defense" shall include, without limitation, any preparation, prosecution, pre-grant proceeding, and post-grant proceeding, whether before a patent office or other administrative body or judicial body with jurisdiction therefor.

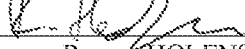
4. Assignors hereby authorize and request the Commissioner of Patents in the United States to issue the above mentioned letters patent of the United States to Assignee as the assignee of said inventions and the letters patent to be issued thereon for the sole use of Assignee, its successors, legal representatives and assigns.

5. I hereby grant to attorneys of Dentons US LLP the power to insert on this Assignment any further identification which may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark office for recordation of this Assignment, including the power to insert on this Assignment the application number and filing date of said application when known.

In witness whereby, executed by the undersigned on the date(s) opposite the undersigned name(s).

Date: _____ Signature: _____
Stephen O. LEMAY

Date: _____ Signature: _____
Michael R. BASTIAN

Date: 8/28/2018 Signature: 
Roman HOLENSTEIN

Date: _____ Signature: _____
Minwoo JEONG

Date: _____ Signature: _____
Charles MAALOUF

Date: _____ Signature: _____
Brandon J. NEWENDORP

Date: _____ Signature: _____
Heriberto NIETO

Date: _____ Signature: _____
Timothy PAEK

Date: _____ Signature: _____
Joanna PETERSON

Date: _____ Signature: _____
Shawn SCULLY

Date: _____ Signature: _____
Srikrishna SRIDHAR

3. Assignors shall promptly sign and execute all papers and documents, take all lawful oaths, and do all acts necessary, required or useful for the procurement, maintenance, enforcement, defense or otherwise to secure title thereto to the Assignee, at the sole cost and expense of Assignee, its successors, legal representatives and assigns, in each case including, without limitation, arising from or relating to (a) said inventions, or said non-provisional application and application for letters patent; (b) any division, continuation, or continuation-in-part claiming priority thereto or the benefit thereof, or any substitution of any such application, or (c) any letters patent or patents for said inventions in any country or jurisdiction, including, without limitation, any modifications to such letters patent or patents such as through any reissue, re-examination or other post-grant proceeding. To be clear, for purposes of this paragraph, "procurement, maintenance, enforcement, defense" shall include, without limitation, any preparation, prosecution, pre-grant proceeding, and post-grant proceeding, whether before a patent office or other administrative body or judicial body with jurisdiction therefor.

4. Assignors hereby authorize and request the Commissioner of Patents in the United States to issue the above mentioned letters patent of the United States to Assignee as the assignee of said inventions and the letters patent to be issued thereon for the sole use of Assignee, its successors, legal representatives and assigns.

5. I hereby grant to attorneys of Dentons US LLP the power to insert on this Assignment any further identification which may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark office for recordation of this Assignment, including the power to insert on this Assignment the application number and filing date of said application when known.

In witness whereby, executed by the undersigned on the date(s) opposite the undersigned name(s).

Date: _____ Signature: _____
Stephen O. LEMAY

Date: _____ Signature: _____
Michael R. BASTIAN

Date: _____ Signature: _____
Roman HOLENSTEIN

Date: 2018-08-20 Signature: _____
Minwoo JEONG

Date: _____ Signature: _____
Charles MAALOUF

Date: _____ Signature: _____
Brandon J. NEWENDORP

Date: _____ Signature: _____
Heriberto NIETO

Date: _____ Signature: _____
Timothy PAEK

Date: _____ Signature: _____
Joanna PETERSON

Date: _____ Signature: _____
Shawn SCULLY

Date: _____ Signature: _____
Srikrishna SRIDHAR

3. Assignors shall promptly sign and execute all papers and documents, take all lawful oaths, and do all acts necessary, required or useful for the procurement, maintenance, enforcement, defense or otherwise to secure title thereto to the Assignee, at the sole cost and expense of Assignee, its successors, legal representatives and assigns, in each case including, without limitation, arising from or relating to (a) said inventions, or said non-provisional application and application for letters patent; (b) any division, continuation, or continuation-in-part claiming priority thereto or the benefit thereof, or any substitution of any such application, or (c) any letters patent or patents for said inventions in any country or jurisdiction, including, without limitation, any modifications to such letters patent or patents such as through any reissue, re-examination or other post-grant proceeding. To be clear, for purposes of this paragraph, "procurement, maintenance, enforcement, defense" shall include, without limitation, any preparation, prosecution, pre-grant proceeding, and post-grant proceeding, whether before a patent office or other administrative body or judicial body with jurisdiction therefor.

4. Assignors hereby authorize and request the Commissioner of Patents in the United States to issue the above mentioned letters patent of the United States to Assignee as the assignee of said inventions and the letters patent to be issued thereon for the sole use of Assignee, its successors, legal representatives and assigns.

5. I hereby grant to attorneys of Dentons US LLP the power to insert on this Assignment any further identification which may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark office for recordation of this Assignment, including the power to insert on this Assignment the application number and filing date of said application when known.

In witness whereof, executed by the undersigned on the date(s) opposite the undersigned name(s).

Date: _____ Signature: _____
Stephen O. LEMAY

Date: _____ Signature: _____
Michael R. BASTIAN

Date: _____ Signature: _____
Roman HOLENSTEIN

Date: _____ Signature: _____
Minwoo JEONG

Date: 02/06/2019 Signature: _____
Charles MAALOUF

Date: _____ Signature: _____
Brandon J. NEWENDORP

Date: _____ Signature: _____
Heriberto NIETO

Date: _____ Signature: _____
Timothy PAEK

Date: _____ Signature: _____
Joanna PETERSON

Date: _____ Signature: _____
Shawn SCULLY

Date: _____ Signature: _____
Srikrishna SRIDHAR

3. Assignors shall promptly sign and execute all papers and documents, take all lawful oaths, and do all acts necessary, required or useful for the procurement, maintenance, enforcement, defense or otherwise to secure title thereto to the Assignee, at the sole cost and expense of Assignee, its successors, legal representatives and assigns, in each case including, without limitation, arising from or relating to (a) said inventions, or said non-provisional application and application for letters patent; (b) any division, continuation, or continuation-in-part claiming priority thereto or the benefit thereof, or any substitution of any such application, or (c) any letters patent or patents for said inventions in any country or jurisdiction, including, without limitation, any modifications to such letters patent or patents such as through any reissue, re-examination or other post-grant proceeding. To be clear, for purposes of this paragraph, "procurement, maintenance, enforcement, defense" shall include, without limitation, any preparation, prosecution, pre-grant proceeding, and post-grant proceeding, whether before a patent office or other administrative body or judicial body with jurisdiction therefor.

4. Assignors hereby authorize and request the Commissioner of Patents in the United States to issue the above mentioned letters patent of the United States to Assignee as the assignee of said inventions and the letters patent to be issued thereon for the sole use of Assignee, its successors, legal representatives and assigns.

5. I hereby grant to attorneys of Dentons US LLP the power to insert on this Assignment any further identification which may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark office for recordation of this Assignment, including the power to insert on this Assignment the application number and filing date of said application when known.

In witness whereby, executed by the undersigned on the date(s) opposite the undersigned name(s).

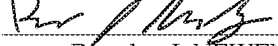
Date: _____ Signature: _____
Stephen O. LEMAY

Date: _____ Signature: _____
Michael R. BASTIAN

Date: _____ Signature: _____
Roman HOLENSTEIN

Date: _____ Signature: _____
Minwoo JEONG

Date: _____ Signature: _____
Charles MAALOUF

Date: 8.7.18 Signature: 
Brandon J. NEWENDORP

Date: _____ Signature: _____
Heriberto NIETO

Date: _____ Signature: _____
Timothy PAEK

Date: _____ Signature: _____
Joanna PETERSON

Date: _____ Signature: _____
Shawn SCULLY

Date: _____ Signature: _____
Srikrishna SRIDHAR

3. Assignors shall promptly sign and execute all papers and documents, take all lawful oaths, and do all acts necessary, required or useful for the procurement, maintenance, enforcement, defense or otherwise to secure title thereto to the Assignee, at the sole cost and expense of Assignee, its successors, legal representatives and assigns, in each case including, without limitation, arising from or relating to (a) said inventions, or said non-provisional application and application for letters patent; (b) any division, continuation, or continuation-in-part claiming priority thereto or the benefit thereof, or any substitution of any such application, or (c) any letters patent or patents for said inventions in any country or jurisdiction, including, without limitation, any modifications to such letters patent or patents such as through any reissue, re-examination or other post-grant proceeding. To be clear, for purposes of this paragraph, "procurement, maintenance, enforcement, defense" shall include, without limitation, any preparation, prosecution, pre-grant proceeding, and post-grant proceeding, whether before a patent office or other administrative body or judicial body with jurisdiction therefor.

4. Assignors hereby authorize and request the Commissioner of Patents in the United States to issue the above mentioned letters patent of the United States to Assignee as the assignee of said inventions and the letters patent to be issued thereon for the sole use of Assignee, its successors, legal representatives and assigns.

5. I hereby grant to attorneys of Dentons US LLP the power to insert on this Assignment any further identification which may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark office for recordation of this Assignment, including the power to insert on this Assignment the application number and filing date of said application when known.

In witness whereby, executed by the undersigned on the date(s) opposite the undersigned name(s).

Date: _____ Signature: _____
Stephen O. LEMAY

Date: _____ Signature: _____
Michael R. BASTIAN

Date: _____ Signature: _____
Roman HOLENSTEIN

Date: _____ Signature: _____
Minwoo JEONG

Date: _____ Signature: _____
Charles MAALOUF

Date: _____ Signature: _____
Brandon J. NEWENDORP

Date: 08/20/2018 Signature: *Heriberto Nieto*
Heriberto NIETO

Date: _____ Signature: _____
Timothy PAEK

Date: _____ Signature: _____
Joanna PETERSON

Date: _____ Signature: _____
Shawn SCULLY

Date: _____ Signature: _____
Srikrishna SRIDHAR

3. Assignors shall promptly sign and execute all papers and documents, take all lawful oaths, and do all acts necessary, required or useful for the procurement, maintenance, enforcement, defense or otherwise to secure title thereto to the Assignee, at the sole cost and expense of Assignee, its successors, legal representatives and assigns, in each case including, without limitation, arising from or relating to (a) said inventions, or said non-provisional application and application for letters patent; (b) any division, continuation, or continuation-in-part claiming priority thereto or the benefit thereof, or any substitution of any such application, or (c) any letters patent or patents for said inventions in any country or jurisdiction, including, without limitation, any modifications to such letters patent or patents such as through any reissue, re-examination or other post-grant proceeding. To be clear, for purposes of this paragraph, "procurement, maintenance, enforcement, defense" shall include, without limitation, any preparation, prosecution, pre-grant proceeding, and post-grant proceeding, whether before a patent office or other administrative body or judicial body with jurisdiction therefor.

4. Assignors hereby authorize and request the Commissioner of Patents in the United States to issue the above mentioned letters patent of the United States to Assignee as the assignee of said inventions and the letters patent to be issued thereon for the sole use of Assignee, its successors, legal representatives and assigns.

5. I hereby grant to attorneys of Dentons US LLP the power to insert on this Assignment any further identification which may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark office for recordation of this Assignment, including the power to insert on this Assignment the application number and filing date of said application when known.

In witness whereby, executed by the undersigned on the date(s) opposite the undersigned name(s).

Date: _____ Signature: _____
Stephen O. LEMAY

Date: _____ Signature: _____
Michael R. BASTIAN

Date: _____ Signature: _____
Roman HOLENSTEIN

Date: _____ Signature: _____
Minwoo JEONG

Date: _____ Signature: _____
Charles MAALOUF

Date: _____ Signature: _____
Brandon J. NEWENDORP

Date: _____ Signature: _____
Heriberto NIETO

Date: _____ Signature: _____
Timothy PAEK

Date: 8/9/2018 Signature: 
Joanna PETERSON

Date: _____ Signature: _____
Shawn SCULLY

Date: _____ Signature: _____
Srikrishna SRIDHAR

3. Assignors shall promptly sign and execute all papers and documents, take all lawful oaths, and do all acts necessary, required or useful for the procurement, maintenance, enforcement, defense or otherwise to secure title thereto to the Assignee, at the sole cost and expense of Assignee, its successors, legal representatives and assigns, in each case including, without limitation, arising from or relating to (a) said inventions, or said non-provisional application and application for letters patent; (b) any division, continuation, or continuation-in-part claiming priority thereto or the benefit thereof, or any substitution of any such application, or (c) any letters patent or patents for said inventions in any country or jurisdiction, including, without limitation, any modifications to such letters patent or patents such as through any reissue, re-examination or other post-grant proceeding. To be clear, for purposes of this paragraph, "procurement, maintenance, enforcement, defense" shall include, without limitation, any preparation, prosecution, pre-grant proceeding, and post-grant proceeding, whether before a patent office or other administrative body or judicial body with jurisdiction therefor.

4. Assignors hereby authorize and request the Commissioner of Patents in the United States to issue the above mentioned letters patent of the United States to Assignee as the assignee of said inventions and the letters patent to be issued thereon for the sole use of Assignee, its successors, legal representatives and assigns.

5. I hereby grant to attorneys of Dentons US LLP the power to insert on this Assignment any further identification which may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark office for recordation of this Assignment, including the power to insert on this Assignment the application number and filing date of said application when known.

In witness whereby, executed by the undersigned on the date(s) opposite the undersigned name(s).

Date: _____ Signature: _____
Stephen O. LEMAY

Date: _____ Signature: _____
Michael R. BASTIAN

Date: _____ Signature: _____
Roman HOLENSTEIN

Date: _____ Signature: _____
Minwoo JEONG

Date: _____ Signature: _____
Charles MAALOUF

Date: _____ Signature: _____
Brandon J. NEWENDORP

Date: _____ Signature: _____
Heriberto NIETO

Date: _____ Signature: _____
Timothy PAEK

Date: _____ Signature: _____
Joanna PETERSON

Date: 8/10/18 Signature: _____
Shawn SCULNY

Date: _____ Signature: _____
Srikrishna SRIDHAR

3. Assignors shall promptly sign and execute all papers and documents, take all lawful oaths, and do all acts necessary, required or useful for the procurement, maintenance, enforcement, defense or otherwise to secure title thereto to the Assignee, at the sole cost and expense of Assignee, its successors, legal representatives and assigns, in each case including, without limitation, arising from or relating to (a) said inventions, or said non-provisional application and application for letters patent; (b) any division, continuation, or continuation-in-part claiming priority thereto or the benefit thereof, or any substitution of any such application, or (c) any letters patent or patents for said inventions in any country or jurisdiction, including, without limitation, any modifications to such letters patent or patents such as through any reissue, re-examination or other post-grant proceeding. To be clear, for purposes of this paragraph, "procurement, maintenance, enforcement, defense" shall include, without limitation, any preparation, prosecution, pre-grant proceeding, and post-grant proceeding, whether before a patent office or other administrative body or judicial body with jurisdiction therefor.

4. Assignors hereby authorize and request the Commissioner of Patents in the United States to issue the above mentioned letters patent of the United States to Assignee as the assignee of said inventions and the letters patent to be issued thereon for the sole use of Assignee, its successors, legal representatives and assigns.

5. I hereby grant to attorneys of Dentons US LLP the power to insert on this Assignment any further identification which may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark office for recordation of this Assignment, including the power to insert on this Assignment the application number and filing date of said application when known.

In witness whereby, executed by the undersigned on the date(s) opposite the undersigned name(s).

Date: _____ Signature: _____
Stephen O. LEMAY

Date: _____ Signature: _____
Michael R. BASTIAN

Date: _____ Signature: _____
Roman HOLENSTEIN

Date: _____ Signature: _____
Minwoo JEONG

Date: _____ Signature: _____
Charles MAALOUF

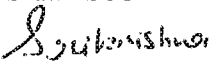
Date: _____ Signature: _____
Brandon J. NEWENDORP

Date: _____ Signature: _____
Heriberto NIETO

Date: _____ Signature: _____
Timothy PAEK

Date: _____ Signature: _____
Joanna PETERSON

Date: _____ Signature: _____
Shawn SCULLY

Date: Sep 25 2018 Signature: 
Srikrishna SRIDHAR

Date: 8/14/18

Signature: *Brandt Westing*
Brandt M. WESTING

Date: _____


Signature: _____
Shiwen ZHAO

Date: _____

Signature: _____

Brandt M. WESTING

Date: 22/08/2018

Signature:  _____

Shiwen ZHAO