

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
Stylesheet Version v1.2

EPAS ID: PAT6283055

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
BRYAN HANSEN	08/27/2020
NIKROUZ GHOTBI	08/27/2020
YIFENG GUI	09/03/2020
XINYUAN HUANG	08/27/2020
BENJAMIN S. PHIPPS	08/27/2020
EUGENE RAY	08/27/2020
MAHESH RAMARAY SHANBHAG	08/27/2020
JAIREH TECARRO	08/27/2020
SUMIT WATTAL	08/27/2020
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	APPLE INC.
<b>Street Address:</b>	ONE APPLE PARK WAY
<b>City:</b>	CUPERTINO
<b>State/Country:</b>	CALIFORNIA
<b>Postal Code:</b>	95014
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
Application Number:	16990894
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	
<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>	
<b>Phone:</b>	(650) 798-0331
<b>Email:</b>	staci.berry@dentons.com, patent.docket@dentons.com
<b>Correspondent Name:</b>	ADAM BOFILL
<b>Address Line 1:</b>	DENTONS US LLP
<b>Address Line 2:</b>	1530 PAGE MILL ROAD, SUITE 200
<b>Address Line 4:</b>	PALO ALTO, CALIFORNIA 94304
<b>ATTORNEY DOCKET NUMBER:</b>	P49115US3/77870000349103
<b>NAME OF SUBMITTER:</b>	ADAM BOFILL

PATENT

<b>SIGNATURE:</b>	/Adam Bofill/
<b>DATE SIGNED:</b>	09/03/2020
<b>Total Attachments: 18</b> source=P49115US3_Asg_090320#page1.tif source=P49115US3_Asg_090320#page2.tif source=P49115US3_Asg_090320#page3.tif source=P49115US3_Asg_090320#page4.tif source=P49115US3_Asg_090320#page5.tif source=P49115US3_Asg_090320#page6.tif source=P49115US3_Asg_090320#page7.tif source=P49115US3_Asg_090320#page8.tif source=P49115US3_Asg_090320#page9.tif source=P49115US3_Asg_090320#page10.tif source=P49115US3_Asg_090320#page11.tif source=P49115US3_Asg_090320#page12.tif source=P49115US3_Asg_090320#page13.tif source=P49115US3_Asg_090320#page14.tif source=P49115US3_Asg_090320#page15.tif source=P49115US3_Asg_090320#page16.tif source=P49115US3_Asg_090320#page17.tif source=P49115US3_Asg_090320#page18.tif	

## ASSIGNMENT

This Assignment is by:

Bryan HANSEN  
c/o Apple Inc.  
One Apple Park Way  
Cupertino, California 95014

(referred to in this Assignment as "Assignor"), 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.

Assignor has invented certain new and useful inventions in:

### DIGITAL ASSISTANT HARDWARE ABSTRACTION

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

Serial No.: 16/990,894

Filing Date: August 11, 2020

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

1. Assignor hereby sells, assigns, transfers and sets over or acknowledges that Assignor has sold, assigned, transferred and set over, to Assignee, its successors, legal representatives and assigns, Assignor's entire right (including the right to claim priority), title and interest in and to the above-mentioned inventions, provisional application and application for letters patent, any and all provisionals, 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 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 Assignor, had this sale and assignment not been made.
2. Assignor represents, warrants and covenants (a) that, at the time of execution and delivery of this agreement, Assignor is a lawful owner of a 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 Assignor has good and full right and lawful authority to sell and convey the same in the manner set forth in this agreement, or (b) that Assignor lawfully owned a 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 Assignor sold, assigned, transferred and set over to Assignee and its successors, legal representatives and assigns, the right, title and interest in and to said inventions and said non-provisional application and application for letters patent.
3. Assignor 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. 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. Assignor hereby authorizes and requests 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 said application for letters patent, and the letters patent to be issued thereon for the sole use of Assignee, its successors, legal representatives and assigns.

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

Date: 27-Aug-2020

Signature: /  /  
Bryan HANSEN

## ASSIGNMENT

This Assignment is by:

Nikrouz GHOTBI  
c/o Apple Inc.  
One Apple Park Way  
Cupertino, California 95014

(referred to in this Assignment as "Assignor"), 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

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Assignor has invented certain new and useful inventions in:

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2. Assignor represents, warrants and covenants (a) that, at the time of execution and delivery of this agreement, Assignor is a lawful owner of a 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 Assignor has good and full right and lawful authority to sell and convey the same in the manner set forth in this agreement, or (b) that Assignor lawfully owned a 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 Assignor sold, assigned, transferred and set over to Assignee and its successors, legal representatives and assigns, the right, title and interest in and to said inventions and said non-provisional application and application for letters patent.
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In witness whereby, executed by the undersigned on the date opposite the undersigned name.

Date: 27-Aug-2020

Signature: /  /  
Nikrouz GHOTBI

## ASSIGNMENT

This Assignment is by:

Yifeng GUI  
c/o Apple Inc.  
One Apple Park Way  
Cupertino, California 95014

(referred to in this Assignment as "Assignor"), 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.

Assignor has invented certain new and useful inventions in:

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Serial No.: 16/990,894

Filing Date: August 11, 2020

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


1. Assignor hereby sells, assigns, transfers and sets over or acknowledges that Assignor has sold, assigned, transferred and set over, to Assignee, its successors, legal representatives and assigns, Assignor's entire right (including the right to claim priority), title and interest in and to the above-mentioned inventions, provisional application and application for letters patent, any and all provisionals, 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 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 Assignor, had this sale and assignment not been made.
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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. 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. Assignor hereby authorizes and requests 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 said application for letters patent, and the letters patent to be issued thereon for the sole use of Assignee, its successors, legal representatives and assigns.

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

Date: 03-Sep-2020

Signature: /  /  
Yifeng GUI



## ASSIGNMENT

This Assignment is by:

Xinyuan HUANG  
c/o Apple Inc.  
One Apple Park Way  
Cupertino, California 95014

(referred to in this Assignment as "Assignor"), 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.

Assignor has invented certain new and useful inventions in:

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

Serial No.: 16/990,894

Filing Date: August 11, 2020

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

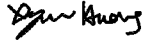
1. Assignor hereby sells, assigns, transfers and sets over or acknowledges that Assignor has sold, assigned, transferred and set over, to Assignee, its successors, legal representatives and assigns, Assignor's entire right (including the right to claim priority), title and interest in and to the above-mentioned inventions, provisional application and application for letters patent, any and all provisionals, 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 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 Assignor, had this sale and assignment not been made.
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In witness whereby, executed by the undersigned on the date opposite the undersigned name.

Date: 27-Aug-2020

Signature: /  /  
Xinyuan HUANG

## ASSIGNMENT

This Assignment is by:

Benjamin S. PHIPPS  
c/o Apple Inc.  
One Apple Park Way  
Cupertino, California 95014

(referred to in this Assignment as "Assignor"), 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.

Assignor has invented certain new and useful inventions in:

### DIGITAL ASSISTANT HARDWARE ABSTRACTION

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

Serial No.: 16/990,894

Filing Date: August 11, 2020

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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. 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.

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

Date: 27-Aug-2020

Signature: /  /  
Benjamin S. PHIPPS

## ASSIGNMENT

This Assignment is by:

Eugene RAY  
c/o Apple Inc.  
One Apple Park Way  
Cupertino, California 95014

(referred to in this Assignment as "Assignor"), 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

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

Date: 27-Aug-2020

Signature: / *Eugene Ray* /  
Eugene RAY

## ASSIGNMENT

This Assignment is by:

Mahesh Ramaray SHANBHAG  
c/o Apple Inc.  
One Apple Park Way  
Cupertino, California 95014

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

This Assignment is to:

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Address: One Apple Park Way, Cupertino, California 95014  
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Assignor has invented certain new and useful inventions in:

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Filing Date: August 11, 2020

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


1. Assignor hereby sells, assigns, transfers and sets over or acknowledges that Assignor has sold, assigned, transferred and set over, to Assignee, its successors, legal representatives and assigns, Assignor's entire right (including the right to claim priority), title and interest in and to the above-mentioned inventions, provisional application and application for letters patent, any and all provisionals, 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 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 Assignor, had this sale and assignment not been made.
2. Assignor represents, warrants and covenants (a) that, at the time of execution and delivery of this agreement, Assignor is a lawful owner of a 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 Assignor has good and full right and lawful authority to sell and convey the same in the manner set forth in this agreement, or (b) that Assignor lawfully owned a 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 Assignor sold, assigned, transferred and set over to Assignee and its successors, legal representatives and assigns, the right, title and interest in and to said inventions and said non-provisional application and application for letters patent.
3. Assignor 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. 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. Assignor hereby authorizes and requests 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 said application for letters patent, and the letters patent to be issued thereon for the sole use of Assignee, its successors, legal representatives and assigns.

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

Date: 27-Aug-2020

Signature: /  /  
Mahesh Ramaray SHANBHAG



## ASSIGNMENT

This Assignment is by:

Jaireh TECARRO  
c/o Apple Inc.  
One Apple Park Way  
Cupertino, California 95014

(referred to in this Assignment as "Assignor"), 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.

Assignor has invented certain new and useful inventions in:

### DIGITAL ASSISTANT HARDWARE ABSTRACTION

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

Serial No.: 16/990,894

Filing Date: August 11, 2020

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

1. Assignor hereby sells, assigns, transfers and sets over or acknowledges that Assignor has sold, assigned, transferred and set over, to Assignee, its successors, legal representatives and assigns, Assignor's entire right (including the right to claim priority), title and interest in and to the above-mentioned inventions, provisional application and application for letters patent, any and all provisionals, 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 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 Assignor, had this sale and assignment not been made.
2. Assignor represents, warrants and covenants (a) that, at the time of execution and delivery of this agreement, Assignor is a lawful owner of a 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 Assignor has good and full right and lawful authority to sell and convey the same in the manner set forth in this agreement, or (b) that Assignor lawfully owned a 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 Assignor sold, assigned, transferred and set over to Assignee and its successors, legal representatives and assigns, the right, title and interest in and to said inventions and said non-provisional application and application for letters patent.
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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. 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. Assignor hereby authorizes and requests 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 said application for letters patent, and the letters patent to be issued thereon for the sole use of Assignee, its successors, legal representatives and assigns.

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

Date: 27-Aug-2020

Signature: /  /  
Jaireh TECARRO

## ASSIGNMENT

This Assignment is by:

Sumit WATTAL  
c/o Apple Inc.  
One Apple Park Way  
Cupertino, California 95014

(referred to in this Assignment as "Assignor"), 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.

Assignor has invented certain new and useful inventions in:

### DIGITAL ASSISTANT HARDWARE ABSTRACTION

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3. Assignor 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. 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.

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

Date: 27-Aug-2020

Signature: / *Sumit WATTAL* /  
Sumit WATTAL