PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT5213652

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
HONG GAO	10/05/2018
KAI-HOW FARH	10/08/2018
LAKSSHMAN SUNDARAM	10/11/2018
JEREMY FRANCIS MCRAE	10/05/2018

RECEIVING PARTY DATA

Name:	ILLUMINA, INC.
Street Address:	5200 ILLUMINA WAY
City:	SAN DIEGO
State/Country:	CALIFORNIA
Postal Code:	92122

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	16160903

CORRESPONDENCE DATA

Fax Number: (858)202-4545

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.

Phone: 8582024500
Email: illuminadocket@illumina.foundationip.com,
                  khicks@illumina.foundationip.com,
Correspondent Name: ILLUMINA, INC.
Address Line 1:   5200 ILLUMINA WAY
Address Line 4:   SAN DIEGO, CALIFORNIA 92122

NAME OF SUBMITTER:	KEIKO A. MASUYAMA HICKS
SIGNATURE:	/Keiko A. Masuyama Hicks/
DATE SIGNED:	10/30/2018

Total Attachments: 7
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ASSIGNMENT FROM INVENTORS

Docket No.: IP-1611-US, IP-1611-PCT   Page 1 of 5
Title: DEEP LEARNING-BASED TECHNIQUES FOR TRAINING DEEP CONVOLUTIONAL NEURAL NETWORKS
U.S. Application No.:
Filing Date:
Inventor(s): Hong Gao, Kai-How Farh, Laksshman Sundaram, Jeremy Francis McRae,

WHEREAS, above-identified inventors (collectively "the Assignor/s") have made certain new and useful inventions, discoveries, and improvements (the "Inventions"), for which the Assignor/s filed the application/s listed above and now desire/s to convey all right, title, and interest in:

- the Inventions,

- the application/s listed above, and any other applications for patent, design, utility model, certificate of invention, trademark, or trade dress, in any country or under any international or regional authority (e.g. WIPO/PCT, EPO, ARIPO, EAPO, OAPI), to the extent some or all of its subject matter is disclosed and entitled to the benefit of priority in the application/s listed above, including provisional, continuation, divisional, continuation-in-part, reissue, and reexamination applications (collectively "the Application/s"),

- the benefit of earlier filing date and right to claim priority to the Inventions and Application/s under applicable law and treaties, including the Paris Convention for the Protection of Industrial Property as revised and amended and 35 U.S.C. §§ 119, 120,

- any rights accrued by the publication of the Application/s, such as 35 U.S.C. § 154(d), Art. 67(1) EPC,

- any Letters Patent or Certificates of Invention that may be issued or granted from the Application/s, including reissued patents, reexamination certificates, renewals, and any rights resulting from an extension or adjustment of patent term, and

- any rights arising from the Invention under laws and conventions protecting copyright, trademark, trade dress, or other industrial property,

(collectively, "the IP Rights"), and

WHEREAS, ILLUMINA, INC., a Delaware corporation having a place of business at 5200 Illumina Way, San Diego, CA 92122, United States of America, is desirous of acquiring the entire right, title, and interest for itself, its successors, and its assigns (collectively "the Assignee") in the IP Rights by an instrument in writing, 35 U.S.C. § 261;

NOW, THEREFORE, to all whom it may concern, be it known that, for good and valuable consideration, the receipt and sufficiency of which I/we hereby acknowledge and hereby waive the right to any additional compensation concerning the IP Rights:

ASSIGNMENT FROM INVENTORS

Docket No.: IP-1611-US, IP-1611-PCT   Page 2 of 5
Title: DEEP LEARNING-BASED TECHNIQUES FOR TRAINING DEEP CONVOLUTIONAL NEURAL NETWORKS
U.S. Application No.:
Filing Date:
Inventor(s): Hong Gao, Kai-How Farh, Laksshman Sundaram, Jeremy Francis McRae,

I/we warrant and represent to the Assignee that I/we have the full right to convey my/our right, title, and interest in the IP Rights without encumbrance, and that I/we have not made any earlier assignment, license, grant, or mortgage to another, or made any agreement with another, that would affect my/our right, title, and interest in the IP Rights;

By this Assignment and by virtue of any earlier agreements to assign, I/we hereby assign, transfer, convey, and sell my/our entire right, title, and interest in the IP Rights to the Assignee, including any claims or causes of action for damages or other remedies arising out of any earlier violation of the IP Rights, for and to inure to the Assignee's full benefit of the IP Rights as fully as they would have been held by me/us if this Assignment had not been made;

I/we authorize the Assignee and its legal representatives to:

(a)   insert into this Assignment any supplemental information to make the identification more complete for any of the Application/s or Letters Patent already listed above,

(b)   prosecute the Application/s, file new applications for the Invention/s, and do all acts permitted by law to protect and enforce the IP Rights,

(c)   request that Letters Patent and Certificates of Invention be issued and granted to and in the name of the Assignee by the issuing or granting authority, such as the U.S. Commissioner for Patents, 37 C.F.R. § 3.81; and

I/we agree with the Assignee that I/we and my/our legal representatives, heirs, and executors will perform all acts deemed necessary or desirable by the Assignee to permit and assist it to secure the entire right, title, and interest in the IP Rights so that the Assignee may benefit from this Assignment, including:

(a)   communicating to the Assignee all facts known to me/us that relate to the history and extent of my individual contribution to the IP Rights, including the circumstances of the conception of the invention and its development and reduction to practice, and furnishing supporting documents or items in my control,

(b)   assisting in the preparation of the Application/s and their prosecution by the Assignee, 37 C.F.R. § 3.71, and in the enforcement of the IP Rights, including making, executing, and delivering to the Assignee any other necessary documents, such as further application papers, declarations, affidavits, disclaimers, petitions, or assignments, and

(c)   assisting and cooperating in administrative and legal proceedings, including giving written and oral testimony,

Title: DEEP LEARNING-BASED TECHNIQUES FOR TRAINING DEEP CONVOLUTIONAL NEURAL NETWORKS
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Inventor(s): Hong Gao, Kai-How Farh, Laksshman Sundaram, Jeremy Francis McRae,

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so that these will be performed without further consideration, except for reasonable actual expenses to be reimbursed by the Assignee.

I/we further agree with the Assignee that I/we will not perform any future act, execute any subsequent document, or make any subsequent agreement with another person or party that conflicts with this Assignment, that purports to transfer any right, title, or interest in the IP Rights that are the subject of this Assignment, unless agreed to in writing by the Assignee or that prevents the Assignee from receiving the full benefit of the bargain under this Assignment.

If any provision of this Assignment is held invalid or unenforceable, that provision shall be enforced to the maximum extent permissible in order to put into effect the intent of the Assignor/s and the Assignee, and the remainder of this Assignment shall not be affected, but continue in full force and effect.

This document shall be executable by each Assignor in parts, and the Assignment will be effective and recordable for each Assignor as of the date of that Assignor's signature.

Legal Name of Inventor: Hong Gao
IN TESTIMONY WHEREOF, I hereunto set my hand and seal this ⎵5th⎵ day of ⎵October⎵ , 20⎵18⎵ .

Signature: ⎵⎵⎵⎵⎵⎵⎵⎵⎵⎵⎵⎵⎵⎵⎵

Legal Name of Inventor: Kai-How Farh
IN TESTIMONY WHEREOF, I hereunto set my hand and seal this ⎵⎵⎵ day of ⎵⎵⎵⎵⎵⎵⎵ , 20⎵⎵⎵ .

Signature: ⎵⎵⎵⎵⎵⎵⎵⎵⎵⎵⎵⎵⎵⎵⎵

Docket No.: IP-1611-US, IP-1611-PCT   Page 3 of 5
Title: DEEP LEARNING-BASED TECHNIQUES FOR TRAINING DEEP CONVOLUTIONAL NEURAL NETWORKS
U.S. Application No.:
Filing Date:
Inventor(s): Hong Gao, Kai-How Farh, Laksshman Sundaram, Jeremy Francis McRae,

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so that these will be performed without further consideration, except for reasonable actual expenses to be reimbursed by the Assignee.

I/we further agree with the Assignee that I/we will not perform any future act, execute any subsequent document, or make any subsequent agreement with another person or party that conflicts with this Assignment, that purports to transfer any right, title, or interest in the IP Rights that are the subject of this Assignment, unless agreed to in writing by the Assignee or that prevents the Assignee from receiving the full benefit of the bargain under this Assignment.

If any provision of this Assignment is held invalid or unenforceable, that provision shall be enforced to the maximum extent permissible in order to put into effect the intent of the Assignor/s and the Assignee, and the remainder of this Assignment shall not be affected, but continue in full force and effect.

This document shall be executable by each Assignor in parts, and the Assignment will be effective and recordable for each Assignor as of the date of that Assignor's signature.

Legal Name of Inventor: **Hong Gao**
IN TESTIMONY WHEREOF, I hereunto set my hand and seal this _____ day of _____, 20_____.

Signature: _____

Legal Name of Inventor: **Kai-How Farh**
IN TESTIMONY WHEREOF, I hereunto set my hand and seal this _8th_ day of __Oct__, 20 _18_.

Signature: _____

ASSIGNMENT FROM INVENTORS

Docket No.: IP-1611-US, IP-1611-PCT
Title: DEEP LEARNING-BASED TECHNIQUES FOR TRAINING DEEP CONVOLUTIONAL NEURAL NETWORKS
U.S. Application No.:
Filing Date:
Inventor(s): Hong Gao, Kai-How Farh, Laksshman Sundaram, Jeremy Francis McRae,

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Legal Name of Inventor: **Laksshman Sundaram**
IN TESTIMONY WHEREOF, I hereunto set my hand and seal this 11 day of October 20 17.

Signature: _____

Legal Name of Inventor: **Jeremy Francis McRae**
IN TESTIMONY WHEREOF, I hereunto set my hand and seal this ____ day of _____ 20_____.

Signature: _____

ASSIGNMENT FROM INVENTORS

Docket No.: IP-1611-US, IP-1611-PCT

Title: DEEP LEARNING-BASED TECHNIQUES FOR TRAINING DEEP CONVOLUTIONAL NEURAL NETWORKS

U.S. Application No.:

Filing Date:

Inventor(s): Hong Gao, Kai-How Farh, Laksshman Sundaram, Jeremy Francis McRae,

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Legal Name of Inventor: **Laksshman Sundaram**

IN TESTIMONY WHEREOF, I hereunto set my hand and seal this ____ day of _____, 20____.

Signature: _____

Legal Name of Inventor: **Jeremy Francis McRae**

IN TESTIMONY WHEREOF, I hereunto set my hand and seal this 5th day of October , 2018 .

Signature: JFMcRae _____

Docket No.: IP-1611-US, IP-1611-PCT   Page 5 of 5
Title: DEEP LEARNING-BASED TECHNIQUES FOR TRAINING DEEP CONVOLUTIONAL NEURAL NETWORKS
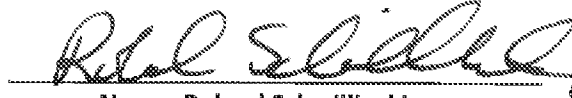U.S. Application No.:
Filing Date:
Inventor(s): Hong Gao, Kai-How Farh, Laksshman Sundaram, Jeremy Francis McRae,

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RECEIVED AND HEREBY ACCEPTED BY ILLUMINA, INC., a Delaware Corporation

Date: _Oct. 11, 2018_

Name: Roland Schwillinski
Title: Vice President, Global IP and Litigation of
         Illumina, Inc.