

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT7471249

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
PIN-YU CHEN	01/17/2019
SIJIA LIU	01/16/2019
AKHILAN BOOPATHY	07/07/2022
TSUI-WEI WENG	07/07/2022
LUCA DANIEL	06/22/2022
RECEIVING PARTY DATA	
Name:	INTERNATIONAL BUSINESS MACHINES CORPORATION
Street Address:	NEW ORCHARD ROAD
City:	ARMONK
State/Country:	NEW YORK
Postal Code:	10504
Name:	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Street Address:	77 MASSACHUSETTS AVE
City:	CAMBRIDGE
State/Country:	MASSACHUSETTS
Postal Code:	02139
PROPERTY NUMBERS Total: 1	
Property Type	Number
Application Number:	16256267
CORRESPONDENCE DATA	
Fax Number:	(703)761-2378
<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>	
Email:	admin@mcginniplaw.com
Correspondent Name:	MCGINN I.P. LAW GROUP, PLLC.
Address Line 1:	8321 OLD COURTHOUSE ROAD, SUITE 200
Address Line 2:	200
Address Line 4:	VIENNA, VIRGINIA 22182
ATTORNEY DOCKET NUMBER:	P201808076US01

NAME OF SUBMITTER:	GEOFFREY K. PECHIE
SIGNATURE:	/Geoffrey K. Pechie/
DATE SIGNED:	08/04/2022
Total Attachments: 12 source=IBM_DEC&Assignmnet#page1.tif source=IBM_DEC&Assignmnet#page2.tif source=IBM_DEC&Assignmnet#page3.tif source=IBM_DEC&Assignmnet#page4.tif source=IBM_DEC&Assignmnet#page5.tif source=IBM_DEC&Assignmnet#page6.tif source=MIT_Assignments#page1.tif source=MIT_Assignments#page2.tif source=MIT_Assignments#page3.tif source=MIT_Assignments#page4.tif source=MIT_Assignments#page5.tif source=MIT_Assignments#page6.tif	

**DECLARATION (37 C.F.R. 1.63) FOR UTILITY PATENT APPLICATION USING AN
APPLICATION DATA SHEET (37 C.F.R. 1.76) AND ASSIGNMENT**

As a below named inventor, I hereby declare that:

**FRAMEWORK FOR CERTIFYING A LOWER BOUND ON A ROBUSTNESS LEVEL OF
CONVOLUTIONAL NEURAL NETWORKS**

This declaration is directed to the attached application, or (if following box is checked):

☐ United States application or PCT international application number _____ filed on

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I have reviewed and understand the contents of the application, including the claims.

I am aware of the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 CFR Section 1.56.

Whereas, the undersigned inventor(s) has/have made certain inventions, improvements, and discoveries (herein referred to as the "Invention") disclosed in the above-identified patent application and further identified by the IBM Docket Number provided above in the header of this document;

Whereas, International Business Machines Corporation, a corporation of New York having a place of business at Armonk, New York (herein referred to as "IBM"), desires to acquire, and each undersigned inventor desires to grant to IBM, the entire worldwide right, title, and interest in and to the Invention and in and to any and all patent applications and patents directed thereto;

Now, therefore, for good and valuable consideration, the receipt and sufficiency thereof being hereby acknowledged, each undersigned inventor ("ASSIGNOR") hereby sells or has sold, assigns or has assigned, and otherwise transfers or has transferred to IBM (the "ASSIGNEE"), its successors, legal representatives, and assigns, the entire worldwide right, title, and interest in and to the Invention, the above-identified United States patent application, and any and all other patent applications and patents for the Invention which may be applied for or granted therefor in the United States and in all foreign countries and jurisdictions, including all divisions, continuations, reissues, reexaminations, renewals, extensions, counterparts, substitutes, and extensions thereof, and all rights of priority resulting from the filing of such applications and granting of such patents. In addition, each undersigned inventor hereby authorizes and requests the Director of the United States Patent and Trademark Office to issue any United States Patent, and foreign patent authorities to issue any foreign patent, granted for the Invention, to IBM, its successors, legal representatives, and assigns, the entire worldwide right, title, and interest in and to the same to be held and enjoyed by IBM, its successors, legal representatives, and assigns to the full end of the terms for which any and all such patents may be granted, as fully and entirely as would have been held and enjoyed by the undersigned had this Assignment not been made; and each undersigned inventor agrees to execute any and all documents and instruments and perform all lawful acts reasonably related to recording this Assignment or perfecting title to the Invention and all related patents and applications, in IBM, its successors, legal representatives, and assigns, whenever requested by IBM, its successors, legal

representatives, or assigns.

Each undersigned inventor acknowledges their prior and ongoing obligations to sell, assign, and transfer the rights under this Assignment to IBM and is unaware of any reason why they may not have the full and unencumbered right to sell, assign, and transfer the rights hereby sold, assigned, and transferred, and has not executed, and will not execute, any document or instrument in conflict herewith. Each undersigned inventor also hereby grants IBM, its successors, legal representatives, and assigns, the right to insert in this Assignment any further identification (including, but not limited to, patent Application Number) which may be necessary or desirable for recordation of this Assignment. This Assignment is governed by the substantive laws of the State of New York, and any disputes will be resolved in a New York state court or federal court sited in New York.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

(1) Legal Name of Inventor: Pin-Yu Chen

Signature: _____

Date: _____

(2) Legal Name of Inventor: Sijia Liu

Signature: _____

Date: _____

IBM DOCKET NUMBER: P201808076US01

representatives, or assigns.

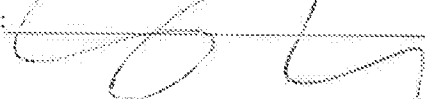
Each undersigned inventor acknowledges their prior and ongoing obligations to sell, assign, and transfer the rights under this Assignment to IBM and is unaware of any reason why they may not have the full and unencumbered right to sell, assign, and transfer the rights hereby sold, assigned, and transferred, and has not executed, and will not execute, any document or instrument in conflict herewith. Each undersigned inventor also hereby grants IBM, its successors, legal representatives, and assigns, the right to insert in this Assignment any further identification (including, but not limited to, patent Application Number) which may be necessary or desirable for recordation of this Assignment. This Assignment is governed by the substantive laws of the State of New York, and any disputes will be resolved in a New York state court or federal court sited in New York.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

(1) Legal Name of Inventor: Pin-Yu Chen

Signature: _____ Date: _____

(2) Legal Name of Inventor: Sijia Liu

Signature:  _____ Date: 01/16/2019

Declaration of Inventorship

As a below-named inventor, I hereby declare that:

I believe that I am the original inventor or an original joint inventor, of the claimed invention in the Application entitled:

FRAMEWORK FOR CERTIFYING A LOWER BOUND ON A ROBUSTNESS LEVEL OF
CONVOLUTIONAL NEURAL NETWORKS

the specification of which (check one):

☒ is attached hereto

☐ was filed as U. S. Application No. or PCT International Application No. _____ on _____.

The Application was made or was authorized to be made by me. I hereby acknowledge that any willful false statement made in this Declaration is punishable under 18 U.S.C. §1001 by fine or imprisonment of not more than five (5) years, or both. I have reviewed and understand the contents of the Application, including the claims, and I am aware of the duty to disclose to the U. S. P. T. O. all information known to be material to patentability as defined in 37 CFR §1.56.

(1) Legal Name of Inventor: Akhilan Boopathy

Inventor's Signature Akhil Boopathy Date 01/16/2019

(2) Legal Name of Inventor: Tsui-Wei Weng

Inventor's Signature _____ Date _____

(3) Legal Name of Inventor: Luca Daniel

Inventor's Signature _____ Date _____

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As a below-named inventor, I hereby declare that:

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FRAMEWORK FOR CERTIFYING A LOWER BOUND ON A ROBUSTNESS LEVEL OF CONVOLUTIONAL NEURAL NETWORKS

the specification of which (check one):

X is attached hereto
_____ was filed as U. S. Application No. or PCT International Application No. _____ on _____

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(1) Legal Name of Inventor: Akhilan Boopathy

Inventor's Signature _____ Date _____

(2) Legal Name of Inventor: Tsui-Wei Weng

Inventor's Signature Tsui-Wei W. Date 01.17.2019

(3) Legal Name of Inventor: Luca Daniel

Inventor's Signature _____ Date _____

Declaration of Inventorship

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(1) Legal Name of Inventor: Akhilan Boopathy

Inventor's Signature _____ Date _____

(2) Legal Name of Inventor: Tsui-Wei Weng

Inventor's Signature _____ Date _____

(3) Legal Name of Inventor: Luca Daniel

Inventor's Signature  Date January 22, 2019

**ASSIGNMENT OF APPLICATION
FOR UNITED STATES PATENT**

WHEREAS:

**NAME AND
ADDRESS OF
ASSIGNOR:**

Akhilan Boopathy
c/o 77 Massachusetts Ave
Cambridge MA, 02139

(hereinafter referred to as ASSIGNOR), have invented and own a certain new and useful invention entitled:

**TITLE OF
INVENTION:**

FRAMEWORK FOR CERTIFYING A LOWER BOUND ON A
ROBUSTNESS LEVEL OF CONVOLUTIONAL NEURAL
NETWORKS

AND WHEREAS:

**FULL NAME
AND ADDRESS
OF ASSIGNEE**

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
77 Massachusetts Ave
Cambridge MA, 02139

(hereinafter referred to as ASSIGNEE), is desirous of acquiring the entire right, title, and interest in, to and under said invention and the United States Letters Patent to be obtained therefore.

NOW THEREFORE, TO ALL WHOM IT MAY CONCERN: Be it known that in consideration of the payment of ASSIGNEE to ASSIGNOR of the sum of One Dollar (\$1.00), the receipt of which is hereby acknowledged, and for other good and valuable consideration, ASSIGNOR, by these presents, hereby sells, assigns and transfers to ASSIGNEE the entire and exclusive right, title and interest to said invention and all Letters Patent of the United States to be obtained therefor on said application or any continuation, division, renewal, substitute or reissue thereof for the full term or terms for which the same may be granted.

ASSIGNOR hereby authorizes and requests my attorney, Sean M. McGinn, of McGinn Intellectual Property Law Group, PLLC, 8321 Old Courthouse Road, Suite 200, Vienna, Virginia, U.S.A. 22182-3817 to insert here in parentheses (Application No. 16/256267, filed January 24, 2019) the filing date and application number of said application when/if known.

(Assignment of Application for Patent -- page 1 of 2)

ASSIGNOR hereby authorizes and requests the Commissioner of Patents and Trademarks to issue said Letters Patent of the United States Patent obtained therefor on said application or any continuation, division, renewal, substitute or reissue thereof for the full term or terms to said ASSIGNEE, of the entire right, title, and interest in and to the same, for his sole use and behoof, and for the use and behoof of his legal representatives, to the full end of the term or terms for which said Letters Patent obtained therefor on said application or any continuation, division, renewal, substitute or reissue thereof for may be granted, as full and entirely as the same would have been held by ASSIGNOR had this assignment and sale not been made.

ASSIGNOR hereby covenants that no assignment, sale, agreement or encumbrance has been or will be made or entered into which would conflict with this assignment and sale;

ASSIGNOR further covenants that ASSIGNEE will, upon its request, be provided promptly with all pertinent facts and documents relating to said application, said invention and said Letters Patent as may be known and accessible to ASSIGNOR and will testify as to the same in any interference or litigation related thereto and will promptly execute and deliver to ASSIGNEE or its legal representative any and all papers, instruments or affidavits required to apply for, obtain, maintain and enforce said application, said invention and said Letters Patent which may be necessary or desirable to carry out the purposes hereof.

DATE OF SIGNING:

IN WITNESS WHEREOF, I/We have hereunto set
hand and seal this 7th day of July, 2022.

ASSIGNOR SIGNATURE:

By: Akhil B. B. B.

WITNESSES:

**ASSIGNMENT OF APPLICATION
FOR UNITED STATES PATENT**

WHEREAS:

**NAME AND
ADDRESS OF
ASSIGNOR:**

Tsui-Wei Weng
c/o 77 Massachusetts Ave
Cambridge MA, 02139

(hereinafter referred to as ASSIGNOR), have invented and own a
certain new and useful invention entitled:

**TITLE OF
INVENTION:**

FRAMEWORK FOR CERTIFYING A LOWER BOUND ON A
ROBUSTNESS LEVEL OF CONVOLUTIONAL NEURAL
NETWORKS

AND WHEREAS:

**FULL NAME
AND ADDRESS
OF ASSIGNEE**

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
77 Massachusetts Ave
Cambridge MA, 02139

(hereinafter referred to as ASSIGNEE), is desirous of
acquiring the entire right, title, and interest in, to and under
said invention and the United States Letters Patent to be
obtained therefore.

NOW THEREFORE, TO ALL WHOM IT MAY CONCERN: Be
it known that in consideration of the payment of ASSIGNEE
to ASSIGNOR of the sum of One Dollar (\$1.00), the receipt of
which is hereby acknowledged, and for other good and
valuable consideration, ASSIGNOR, by these presents,
hereby sells, assigns and transfers to ASSIGNEE the entire
and exclusive right, title and interest to said invention and all
Letters Patent of the United States to be obtained therefor on
said application or any continuation, division, renewal,
substitute or reissue thereof for the full term or terms for
which the same may be granted.

ASSIGNOR hereby authorizes and requests my attorney,
Sean M. McGinn, of McGinn Intellectual Property Law Group,
PLLC, 8321 Old Courthouse Road, Suite 200, Vienna,
Virginia, U.S.A. 22182-3817 to insert here in parentheses
(Application No. 16/256267, filed January 24, 2019) the
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(Assignment of Application for Patent -- page 1 of 2)

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ASSIGNOR hereby covenants that no assignment, sale, agreement or encumbrance has been or will be made or entered into which would conflict with this assignment and sale;

ASSIGNOR further covenants that ASSIGNEE will, upon its request, be provided promptly with all pertinent facts and documents relating to said application, said invention and said Letters Patent as may be known and accessible to ASSIGNOR and will testify as to the same in any interference or litigation related thereto and will promptly execute and deliver to ASSIGNEE or its legal representative any and all papers, instruments or affidavits required to apply for, obtain, maintain and enforce said application, said invention and said Letters Patent which may be necessary or desirable to carry out the purposes hereof.

DATE OF SIGNING:

IN WITNESS WHEREOF, I/We have hereunto set
hand and seal this 7th day of July, 2022.

ASSIGNOR SIGNATURE:

By: Tsui-Wei Weng
Tsui-Wei Weng

WITNESSES:

**ASSIGNMENT OF APPLICATION
FOR UNITED STATES PATENT**

WHEREAS:

**NAME AND
ADDRESS OF
ASSIGNOR:**

Luca Daniel
c/o 77 Massachusetts Ave
Cambridge MA, 02139

(hereinafter referred to as ASSIGNOR), have invented and own a certain new and useful invention entitled:

**TITLE OF
INVENTION:**

FRAMEWORK FOR CERTIFYING A LOWER BOUND ON A
ROBUSTNESS LEVEL OF CONVOLUTIONAL NEURAL
NETWORKS

AND WHEREAS:

**FULL NAME
AND ADDRESS
OF ASSIGNEE**

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
77 Massachusetts Ave
Cambridge MA, 02139

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NOW THEREFORE, TO ALL WHOM IT MAY CONCERN: Be

it known that in consideration of the payment of ASSIGNEE to ASSIGNOR of the sum of One Dollar (\$1.00), the receipt of which is hereby acknowledged, and for other good and valuable consideration, ASSIGNOR, by these presents, hereby sells, assigns and transfers to ASSIGNEE the entire and exclusive right, title and interest to said invention and all Letters Patent of the United States to be obtained therefor on said application or any continuation, division, renewal, substitute or reissue thereof for the full term or terms for which the same may be granted.

ASSIGNOR hereby authorizes and requests my attorney, Sean M. McGinn, of McGinn Intellectual Property Law Group, PLLC, 8321 Old Courthouse Road, Suite 200, Vienna, Virginia, U.S.A. 22182-3817 to insert here in parentheses (Application No. 16/256267, filed January 24, 2019) the filing date and application number of said application when/if known.

(Assignment of Application for Patent -- page 1 of 2)

ASSIGNOR hereby authorizes and requests the
Page 1 of 2

Assignment of Application for U. S. Patent
Docket No. P2018080761-S01
MIT Case No. 20981

Commissioner of Patents and Trademarks to issue said Letters Patent of the United States Patent obtained therefor on said application or any continuation, division, renewal, substitute or reissue thereof for the full term or terms to said ASSIGNEE, of the entire right, title, and interest in and to the same, for his sole use and behoof, and for the use and behoof of his legal representatives, to the full end of the term or terms for which said Letters Patent obtained therefor on said application or any continuation, division, renewal, substitute or reissue thereof for may be granted, as full and entirely as the same would have been held by ASSIGNOR had this assignment and sale not been made.

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DATE OF SIGNING:

IN WITNESS WHEREOF, I/We have hereunto set hand and seal this 22 day of June, 2019.

ASSIGNOR SIGNATURE:

By: 

WITNESSES:

