PATENT ASSIGNMENT COVER SHEET

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| SUBMISSION TYPE: | NEW ASSIGNMENT |
|-----------------------|----------------|
| NATURE OF CONVEYANCE: | ASSIGNMENT |

CONVEYING PARTY DATA

| Name | Execution Date |
|-----------------------|----------------|
| LIJUAN LUO | 08/02/2019 |
| YUZHE MA | 07/25/2019 |
| HAOXING REN | 07/25/2019 |
| BRUCEK KHAILANY | 07/26/2019 |
| HARBINDER SIKKA | 07/26/2019 |
| KARTHIKEYAN NATARAJAN | 08/07/2019 |

RECEIVING PARTY DATA

| Name: | NVIDIA CORP. |
|-----------------|---------------------------|
| Street Address: | 2788 SAN TOMAS EXPRESSWAY |
| City: | SANTA CLARA |
| State/Country: | CALIFORNIA |
| Postal Code: | 95051 |

PROPERTY NUMBERS Total: 1

| Property Type | Number | |
|---------------------|----------|--|
| Application Number: | 16520688 | |

CORRESPONDENCE DATA

Fax Number: (360)294-6426

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: 360-737-1748 jane@fspllc.com Email: CHARLES A. MIRHO **Correspondent Name:** Address Line 1: 431 H STREET

Address Line 4: CRESCENT CITY, CALIFORNIA 95531

| NAME OF SUBMITTER:CHARLES A. MIRHOSIGNATURE:/Charles A. Mirho/ | ATTORNEY DOCKET NUMBER: | FSP1498 |
|--|-------------------------|--------------------|
| SIGNATURE: /Charles A. Mirho/ | NAME OF SUBMITTER: | CHARLES A. MIRHO |
| | SIGNATURE: | /Charles A. Mirho/ |
| DATE SIGNED: 08/08/2019 | DATE SIGNED: | 08/08/2019 |

Total Attachments: 5

source=Assignment 01_FSP1498 08-07-2019#page1.tif source=Assignment 01_FSP1498 08-07-2019#page2.tif source=Assignment 02_FSP1498 08-07-2019#page1.tif source=Assignment 02_FSP1498 08-07-2019#page2.tif source=Assignment 02_FSP1498 08-07-2019#page3.tif

ASSIGNMENT OF PATENT APPLICATION Attorney Docket No.: FSP1498

Filed: 7/24/2019

Title: Deep Learning Testability Analysis with Graph Convolutional Networks

For good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, I/we, the undersigned,

Lijuan Luo

hereby sell, assign, and transfer to

Nvidia Corp.

having a principal place of business at **2788 San Tomas Expressway, Santa Clara, CA, 95051, USA**, ("Assignee"), and its successors, assigns, and legal representatives, the entire right, title, and interest for the United States and all foreign countries, in and to any and all inventions or improvements that are disclosed in the application (provisional or non-provisional) for the United States patent which may have a declaration executed by the undersigned prior hereto or concurrently herewith and is entitled

Deep Learning Testability Analysis with Graph Convolutional Networks

said patent application also identified as follows (when known): 16/520,688 filed on 7/24/2019,

and to each and all of the following applications which claim priority to the above-identified application and to which I, the undersigned, contributed material disclosed and/or claimed:

[I/we hereby authorize an attorney or agent for said Assignee to insert below the application number and filing date of said patent application claiming priority, when known.]

and in and to said application (provisional or non-provisional) and all provisional applications, non-provisional applications, utility applications, design applications, divisional applications, continuation applications, continued prosecution applications, continuation-in-part applications, substitute applications, renewal applications, reissue applications, reexaminations, extensions, and all other patent applications that have been or shall be filed in the United States and all foreign countries on any of said inventions or improvements; and in and to all original patents, reissued patents, reexamination certificates, and extensions, that have been or shall be issued in the United States and all foreign countries on said inventions or improvements; and in and to all rights of priority resulting from the filing of said applications;

agree that said Assignee may apply for and receive a patent or patents for said inventions or improvements in its own name; and that, when requested, without charge to, but at the expense of, said Assignee, its successors, assigns, and legal representatives, to carry out in good faith the intent and purpose of this Assignment, the undersigned will execute all provisional applications, non-provisional applications, utility applications, design applications, divisional applications, continuation applications, continued prosecution applications, continuation-in-part applications, substitute applications, renewal applications, reissue applications, reexaminations, extensions, and all other patent applications on any and all said inventions or improvements;

execute all rightful oaths, assignments, powers of attorney, and other papers; communicate to said Assignee, its successors, assigns, and representatives all facts known to the undersigned relating to said inventions or improvements and the history thereof; and generally assist said Assignee, its successors, assigns, or representatives in securing and maintaining proper patent protection for said inventions or improvements and for vesting title to said inventions or improvements, and all applications for patents and all patents on said inventions or improvements, in said Assignee, its successors, assigns, and legal representatives; and

covenant with said Assignee, its successors, assigns, and legal representatives that no assignment, grant, mortgage, license, or other agreement affecting the rights and property herein conveyed has been made to others by the undersigned, and that full right to convey the same as herein expressed is possessed by the undersigned.

Each Inventor: Please Sign and Date Below:

Lijuan Luo

Date

Signature

Printed/Typed Name

Lijuan Luo

Assignment Document Return Address:

Nvidia Corp.

2788 San Tomas Expressway

Santa Clara, CA, 95051, USA

ASSIGNMENT OF PATENT APPLICATION Attorney Docket No.: FSP1498

Filed: 7/24/2019

Title: Deep Learning Testability Analysis with Graph Convolutional Networks

For good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, I/we, the undersigned,

Yuzhe Ma

Haoxing Ren

Brucek Khailany

Harbinder Sikka

Lijuan Luo

Karthikeyan Natarajan

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Nvidia Corp.

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Deep Learning Testability Analysis with Graph Convolutional Networks

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[I/we hereby authorize an attorney or agent for said Assignee to insert below the application number and filing date of said patent application claiming priority, when known.]

and in and to said application (provisional or non-provisional) and all provisional applications, non-provisional applications, utility applications, design applications, divisional applications, continuation applications, continued prosecution applications, continuation-in-part applications, substitute applications, renewal applications, reissue applications, reexaminations, extensions, and all other patent applications that have been or shall be filed in the United States and all foreign countries on any of said inventions or improvements; and in and to all original patents, reissued patents, reexamination certificates, and extensions, that have been or shall be issued in the United States and all foreign countries on said inventions or improvements; and in and to all rights of priority resulting from the filing of said applications;

agree that said Assignee may apply for and receive a patent or patents for said inventions or improvements in its own name; and that, when requested, without charge to, but at the expense of, said Assignee, its successors, assigns, and legal representatives, to carry out in good faith the intent and purpose of this Assignment, the undersigned will execute all provisional applications, non-provisional applications, utility applications, design applications, divisional applications, continuation applications, continued prosecution applications, continuation-in-part applications, substitute

applications, renewal applications, reissue applications, reexaminations, extensions, and all other patent applications on any and all said inventions or improvements;

execute all rightful oaths, assignments, powers of attorney, and other papers; communicate to said Assignee, its successors, assigns, and representatives all facts known to the undersigned relating to said inventions or improvements and the history thereof; and generally assist said Assignee, its successors, assigns, or representatives in securing and maintaining proper patent protection for said inventions or improvements and for vesting title to said inventions or improvements, and all applications for patents and all patents on said inventions or improvements, in said Assignee, its successors, assigns, and legal representatives; and

covenant with said Assignee, its successors, assigns, and legal representatives that no assignment, grant, mortgage, license, or other agreement affecting the rights and property herein conveyed has been made to others by the undersigned, and that full right to convey the same as herein expressed is possessed by the undersigned.

Each Inventor: Please Sign and Date Below:

Yuzhe Ma

Haoxing Ren

| Brucek Khailany | | |
|---|-----------------------------|--|
| Harbinder Sikka | | |
| Lijuan Luo | | |
| Karthikeyan Natarajan | | |
| Docusigned by: Uybu Ma | , 7/ <u>25/2019</u> Date | Yuzhe Ma Printed/Typed Name |
| Docusigned by: Haoxing Ren DCF95A38C8D34AA Signature | , 7/25/2019 Date | Haoxing Ren Printed/Typed Name |
| Bruck thailany 849AB3D8228A4EF Signature | , 7/26/2019 Date | Brucek Khailany Printed/Typed Name |
| Harbinder Sikka 21CF55C50ACB475 Signature | , 7/ <u>26/2019</u> Date | <u>Harbinder Sikka</u> Printed/Typed Name |
| Signature | , Date | <u>Lijuan Luo</u> Printed/Typed Name |

DocuSign Envelope ID: 5BA761B4-5BB5-4921-A4B9-E6BEC4093A7E

Assignment Document Return Address:

Nvidia Corp.

2788 San Tomas Expressway

Santa Clara, CA, 95051, USA

PATENT REEL: 050005 FRAME: 0749

RECORDED: 08/08/2019