

<b>PATENT ASSIGNMENT COVER SHEET</b>
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Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT7360564

<b>SUBMISSION TYPE:</b>	CORRECTIVE ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	Corrective Assignment to correct the ASSIGNEE ENTITY TYPE previously recorded on Reel 051690 Frame 0616. Assignor(s) hereby confirms the ASSIGNMENT.
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
CHONG WANG	01/27/2020
LISA KIM	01/23/2020
GRACE BANG	01/28/2020
HIMANI SINGH	01/27/2020
RUSSELL KOCIUBA	01/24/2020
STEVEN POMERVILLE	01/28/2020
XIAOMO LIU	01/23/2020
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	S&P GLOBAL INC.
<b>Street Address:</b>	55 WATER STREET
<b>City:</b>	NEW YORK
<b>State/Country:</b>	NEW YORK
<b>Postal Code:</b>	10041
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	16779363
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(972)385-7766
<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>	(972) 385-8777
<b>Email:</b>	ptonotifs@yeeiplaw.com
<b>Correspondent Name:</b>	DUKE W. YEE
<b>Address Line 1:</b>	YEE & ASSOCIATES, P.C.
<b>Address Line 2:</b>	P.O. BOX 6669
<b>Address Line 4:</b>	MCKINNEY, TEXAS 75071
<b>ATTORNEY DOCKET NUMBER:</b>	SPG-RT-2019-09-19-3
<b>NAME OF SUBMITTER:</b>	RUI CHENG XU

<b>SIGNATURE:</b>	/Rui Cheng Xu/
<b>DATE SIGNED:</b>	06/01/2022
<b>Total Attachments: 11</b> source=SPG-RT-2019-09-19-3_CorrectiveAssignment_2022-06-01#page1.tif source=SPG-RT-2019-09-19-3_CorrectiveAssignment_2022-06-01#page2.tif source=SPG-RT-2019-09-19-3_CorrectiveAssignment_2022-06-01#page3.tif source=SPG-RT-2019-09-19-3_CorrectiveAssignment_2022-06-01#page4.tif source=SPG-RT-2019-09-19-3_CorrectiveAssignment_2022-06-01#page5.tif source=SPG-RT-2019-09-19-3_CorrectiveAssignment_2022-06-01#page6.tif source=SPG-RT-2019-09-19-3_CorrectiveAssignment_2022-06-01#page7.tif source=SPG-RT-2019-09-19-3_CorrectiveAssignment_2022-06-01#page8.tif source=SPG-RT-2019-09-19-3_CorrectiveAssignment_2022-06-01#page9.tif source=SPG-RT-2019-09-19-3_CorrectiveAssignment_2022-06-01#page10.tif source=SPG-RT-2019-09-19-3_CorrectiveAssignment_2022-06-01#page11.tif	

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
Stylesheet Version v1.2

EPAS ID: PAT5941578

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
CHONG WANG	01/27/2020
LISA KIM	01/23/2020
GRACE BANG	01/28/2020
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RUSSELL KOCIUBA	01/24/2020
STEVEN POMERVILLE	01/28/2020
XIAOMO LIU	01/23/2020
<b>RECEIVING PARTY DATA</b>	
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<b>City:</b>	NEW YORK
<b>State/Country:</b>	NEW YORK
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<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>	972-385-8777
<b>Email:</b>	ptonotifs@yeeiplaw.com
<b>Correspondent Name:</b>	DUKE W. YEE YEE & ASSOCIATES, P.C.
<b>Address Line 1:</b>	P.O. BOX 190809
<b>Address Line 4:</b>	DALLAS, TEXAS 75219
<b>ATTORNEY DOCKET NUMBER:</b>	SPG-RT-2019-09-19-3
<b>NAME OF SUBMITTER:</b>	BRANDON G. WILLIAMS
<b>SIGNATURE:</b>	/Brandon G. Williams/
<b>DATE SIGNED:</b>	01/31/2020

**Total Attachments: 9**

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

Title of Invention: **DEEP LEARNING-BASED TWO-PHASE CLUSTERING ALGORITHM**

As a below named and undersigned inventor, I hereby declare that:

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, I ("ASSIGNOR") 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 S&P Global Docket Number provided above in the header of this document;

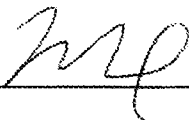
Whereas, S&P Global<sup>Inc. By 5/12/2022</sup> (herein referred to as the "ASSIGNEE"), a corporation of Delaware having a place of business at 55 Water Street New York, New York 10041, desires to acquire, and I desire to grant to the ASSIGNEE, my entire worldwide right, title, and interest in and to 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, I hereby sell or have sold, assign or have assigned, and otherwise transfer or have transferred to the ASSIGNEE, its successors, legal representatives, and assigns, my 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, I hereby authorize and request 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 the ASSIGNEE, its successors, legal representatives, and assigns, my entire worldwide right, title, and interest in and to the same to be held and enjoyed by the ASSIGNEE, 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 me had this Assignment not been made; and I agree 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 the ASSIGNEE, its successors, legal representatives, and assigns, whenever requested by the ASSIGNEE, its successors, legal representatives, or assigns.

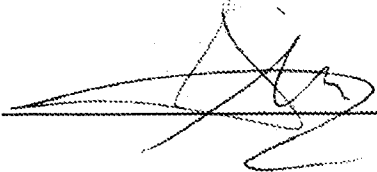
I acknowledge my prior and ongoing obligations to sell, assign, and transfer my rights under this Assignment to the ASSIGNEE and am unaware of any reason why I may not have the full and unencumbered right to sell, assign, and transfer my rights hereby sold, assigned, and transferred, and have not executed, and will not execute, any document or instrument in conflict herewith. I also hereby grant the ASSIGNEE, 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 Delaware, and any disputes will be resolved in a Delaware state court or federal court sited in Delaware.

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: **Chong Wang**

Signature:  Date: 1/27/2020

(2) Legal Name of Inventor: **Lisa Kim**

Signature:  Date: 1/23/2020

(3) Legal Name of Inventor: **Grace Bang**

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

(4) Legal Name of Inventor: **Himani Singh**

Signature:  Date: 1/27/2020

(5) Legal Name of Inventor: **Russell Kociuba**

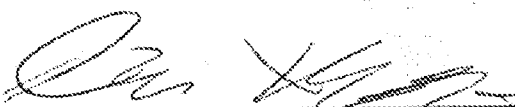
Signature: \_\_\_\_\_ Date: \_\_\_\_\_

S&P DOCKET NUMBER: SPG-RT-2019-09-19-3

(6) Legal Name of Inventor: Steven Pomerville

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

(7) Legal Name of Inventor: Xiaomo Liu

Signature:  \_\_\_\_\_ Date: 01-23-2020

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

Title of Invention: **DEEP LEARNING-BASED TWO-PHASE CLUSTERING ALGORITHM**

As a below named and undersigned inventor, I hereby declare that:

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

United States application or PCT international application number  
\_\_\_\_\_ filed on \_\_\_\_\_

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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.

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Now, therefore, for good and valuable consideration, the receipt and sufficiency thereof being hereby acknowledged, I hereby sell or have sold, assign or have assigned, and otherwise transfer or have transferred to the ASSIGNEE, its successors, legal representatives, and assigns, my 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, I hereby authorize and request 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 the ASSIGNEE, its successors, legal representatives, and assigns, my entire worldwide right, title, and interest in and to the same to be held and enjoyed by the ASSIGNEE, 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 me had this Assignment not been made; and I agree 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 the ASSIGNEE, its successors, legal representatives, and assigns, whenever requested by the ASSIGNEE, its successors, legal representatives, or assigns.



I acknowledge my prior and ongoing obligations to sell, assign, and transfer my rights under this Assignment to the ASSIGNEE and am unaware of any reason why I may not have the full and unencumbered right to sell, assign, and transfer my rights hereby sold, assigned, and transferred, and have not executed, and will not execute, any document or instrument in conflict herewith. I also hereby grant the ASSIGNEE, 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 Delaware, and any disputes will be resolved in a Delaware state court or federal court sited in Delaware.

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Signature: \_\_\_\_\_ Date: \_\_\_\_\_

(2) Legal Name of Inventor: **Lisa Kim**

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

(3) Legal Name of Inventor: **Grace Bang**

Signature:  \_\_\_\_\_ Date: 1/28/20

(4) Legal Name of Inventor: **Himani Singh**

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

(5) Legal Name of Inventor: **Russell Kociuba**

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

(6) Legal Name of Inventor: **Steven Pomerville**

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

(7) Legal Name of Inventor: **Xiaomo Liu**

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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(4) Legal Name of Inventor: **Himani Singh**

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

(5) Legal Name of Inventor: **Russell Kociuba**

Signature:  \_\_\_\_\_ Date: 1/24/20

(6) Legal Name of inventor: Russell Kochuba

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

(7) Legal Name of inventor: Steve Pansville

Signature: Steve Pansville Date: 1/23/2020

(8) Legal Name of inventor: Xisoma Llc

Signature: \_\_\_\_\_ Date: \_\_\_\_\_