505040582 08/08/2018

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT5087333

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
ROCH G. ARCHAMBAULT	07/24/2018
SHIMIN CUI	07/03/2015
STEPHEN CURIAL	08/07/2018
YAOQING GAO	06/26/2015
RAUL E. SILVERA	06/29/2018
PENG ZHAO	06/18/2018

RECEIVING PARTY DATA

Name:	INTERNATIONAL BUSINESS MACHINES CORPORATION
Street Address:	NEW ORCHARD ROAD
City:	ARMONK
State/Country:	NEW YORK
Postal Code:	10504

PROPERTY NUMBERS Total: 1

Property Type	Number	
Application Number:	14811755	

CORRESPONDENCE DATA

Fax Number:

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: 561-922-3845

Email: docketing@crgolaw.com

Correspondent Name: CRGO LAW

Address Line 1: 7900 GLADES ROAD

Address Line 2: SUITE 520

Address Line 4: BOCA RATON, FLORIDA 33434

ATTORNEY DOCKET NUMBER:	CA920070009US2 (067CON)
NAME OF SUBMITTER:	STEVEN GREENBERG
SIGNATURE:	/Steven Greenberg/
DATE SIGNED:	08/08/2018
	This document serves as an Oath/Declaration (37 CFR 1.63).

PATENT

REEL: 046738 FRAME: 0817

Total Attachments: 15 source=1124-067CON_DEC_ASSIGNMENT#page1.tif source=1124-067CON DEC ASSIGNMENT#page2.tif source=1124-067CON_DEC_ASSIGNMENT#page3.tif source=1124-067CON_DEC_ASSIGNMENT#page4.tif source=1124-067CON DEC ASSIGNMENT#page5.tif source=1124-067CON_DEC_ASSIGNMENT#page6.tif source=1124-067CON_DEC_ASSIGNMENT#page7.tif source=1124-067CON_DEC_ASSIGNMENT#page8.tif source=1124-067CON DEC ASSIGNMENT#page9.tif source=1124-067CON_DEC_ASSIGNMENT#page10.tif source=1124-067CON_DEC_ASSIGNMENT#page11.tif source=1124-067CON DEC ASSIGNMENT#page12.tif source=1124-067CON DEC ASSIGNMENT#page13.tif source=1124-067CON_DEC_ASSIGNMENT#page14.tif source=1124-067CON_DEC_ASSIGNMENT#page15.tif

PATENT REEL: 046738 FRAME: 0818

Title of Invention:

DATA SPLITTING FOR RECURSIVE DATA STRUCTURES

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
The above-identified application was made or authorized to be made by me.
believe that I am the original inventor or an original joint inventor of a claimed invention in the application.
have reviewed and understand the contents of the application, including the claims.
am aware of the duty to disclose to the United States Patent and Trademark Office all information

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 IBM Docket Number provided above in the header of this document;

known to me to be material to patentability as defined in 37 CFR Section 1.56.

Whereas, International Business Machines Corporation (herein referred to as the "ASSIGNEE"), a corporation of New York having a place of business at Armonk, New York, 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, it 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.

Page Lof3

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) Legal Name of Inventor:	ROCH G. AI	CHAMBAI			
Signature:	44	Zal	u <u>l</u>	Dates	4
(2) Legal Name of Inventor:	SHIMIN CU				
Signature:				Date:	
(3) Legal Name of Inventor:	STEPHEN C	URIAL			
Signature:				Date:	
(4) Legal Name of Inventor:	YAOQING (340			
Signature:				Date	

Page 2 of 3

Signature:	Date:	
3330000000		
(6) Legal Name of Inventor: PI	NG ZHAO	
(6) Legal Name of Inventor: PI	NG ZHAO	
Signature:	Date:	

Page 3 of 3

Title of Invention:

DATA SPLITTING FOR RECURSIVE DATA STRUCTURES

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

IBM Docket Number provided above in the header of this document;

Whereas, International Business Machines Corporation (herein referred to as the "ASSIGNEE"), a corporation of New York having a place of business at Armonk, New York, 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.

Page 1 of 3

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.

CENT TO THE STATE OF THE STATE

11 3	Legal Maine of Inventor, AUCH G. MICHAMIDAULA	
	Signature:	Date:
(2)	Legal Name of Inventor: SHIMIN CUI	ĸ
	Signature:	Date:
(3)	Legal Name of Inventor: STEPHEN CURIAL	
	Signature: 1712	Date: 8/7/2018
(4)	Legal Name of Inventor: YAOQING GAO	
	Comptage	Data

Page 2 of 3

Legal Name of Inventor: RAULE. SILVERA			
Signature:	Date:		
(6) Legal Name of Inventor: PENG ZHAO			
Cionatura.	Date		

Title of Invention:

DATA SPLITTING FOR RECURSIVE DATA STRUCTURES

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 numberfiled 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 IBM Docket Number provided above in the header of this document;

Whereas, International Business Machines Corporation (herein referred to as the "ASSIGNEE"), a corporation of New York having a place of business at Armonk, New York, 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 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: ROCH G. ARCHAMBAULT	
	Signature:	_Date:
(2)	Legal Name of Inventor: SHIMIN CUI	
	Signature:	20/5-0>-0ぷ Date:
(3)	Legal Name of Inventor: STEPHEN CURIAL	
	Signature:	Date:
(4)	Legal Name of Inventor: YAOQING GAO	
	Signature:	Date:

(5)	Legal Name of Inventor: RAUL E. SILVERA			
	Signature:	Date:		
(6)	Legal Name of Inventor: PENG ZHAO			
	Signature:	Date:		

Title of Invention:

DATA SPLITTING FOR RECURSIVE DATA STRUCTURES

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 numberfiled 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 IBM Docket Number provided above in the header of this document;

Whereas, International Business Machines Corporation (herein referred to as the "ASSIGNEE"), a corporation of New York having a place of business at Armonk, New York, 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 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: ROCH G. ARCHAM	BAULT
Signature:	Date:
(2) Legal Name of Inventor: SHIMIN CUI	
Signature:	Date:
(3) Legal Name of Inventor: STEPHEN CURIAL	
Signature:	Date:
(4) Legal Name of Inventor: YAOQING GAO	
Signature:	Date: June 26,2012

(5) Legal Name of	Inventor: RAUL	E. SILVERA		
Signature:			Date:	
	ie.			
(A.)				
(6) Legal Name of	Inventor: PENG	ZHAO		
	-7.0m/2		nLL	01201
Sionature	(a. M. V. L.)	7	Date: UNIC	7/2018

Title of Invention:

DATA SPLITTING FOR RECURSIVE DATA STRUCTURES

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 numberfiled 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 IBM Docket Number provided above in the header of this document;

Whereas, International Business Machines Corporation (herein referred to as the "ASSIGNEE"), a corporation of New York having a place of business at Armonk, New York, 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 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: ROCH G. ARCHAMBAULT	
	Signature:	Date:
(2)	Legal Name of Inventor: SHIMIN CUI	
	Signature:	Date:
(3)	Legal Name of Inventor: STEPHEN CURIAL	
	Signature:	Date:
(4)	Legal Name of Inventor: YAOQING GAO	
	Signature	Date

(5) Leg Sign	tal Name of nature:	Inventor: KAULE, SILVER	i.a	Date: 6/2	25/18
(6) Leş		Inventor: PENG ZHAO			
Sion	iature:			Date	